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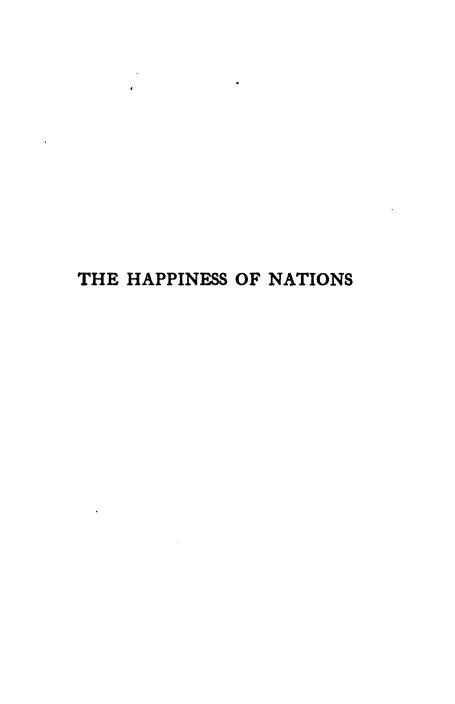


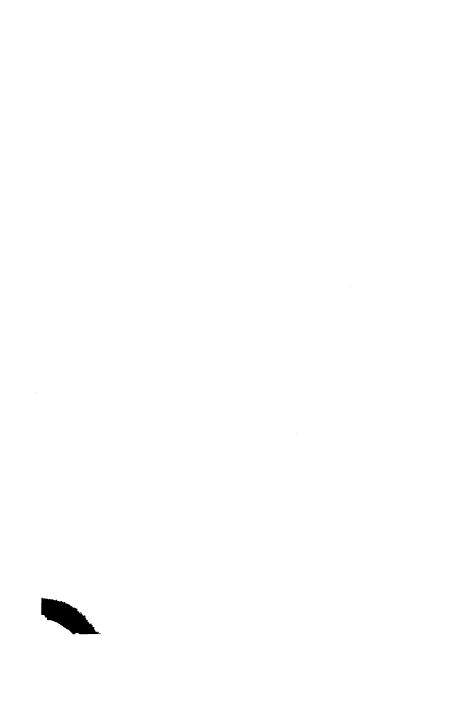




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THE HAPPINESS OF NATIONS: A Beginning in Political Engineering

BY JAMES MACKAYE

Author of "The Economy of Happiness."



NEW YORK
B. W. HUEBSCH
1915

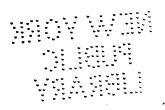
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PREFACE

The following lectures on political engineering were, in substance, included in a series delivered at Harvard University in 1909, and (excepting the fourth) in a series delivered at the Boston School of Social Science in 1911. Portions of the second lecture have been published in the New York Independent.

These lectures are neither entirely popular nor entirely technical, but a compromise between a popular and a technical exposition. Thus they in some degree avoid, and in some degree include, the superficiality of the former and the austerity of the latter.

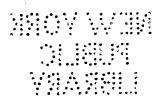
Like the condensation of any other branch of engineering the present outline will raise more questions than it answers, and the

PREFACE

process of answering these questions will inevitably raise others. It is by such processes that science grows, and it is in the hope of stimulating the growth of political engineering that the beginning herein formulated has been made. The progress of science is the progress of society, but there is no science in which progress is so essential to the interests of society at the present time as in the science of political engineering.

JAMES MACKAYE.

Cambridge, Mass., January, 1915.



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Science and reason. Physical and applied science. Ends, proximate and ultimate. Political science. Political engineering. Treats of the adaptation of the means of society to its end. What is its end?

Science originates in the application of reason to the beliefs and acts of men, and is divisible into two classes—physical science which guides belief and applied science which guides conduct. Applied science, as distinguished from physical, is concerned with the adaptation of means to ends, and ends are of two classes—proximate ends or those which are of interest only because they are themselves means, immediate or remote, to some ultimate end; and ultimate or intrinsicends which are of interest not because of what they are means to, but because of what they are.

In the lectures to follow will be outlined a mode of applying reason to the conduct of society, involving not only the application of the scientific method to ascertaining the relation between certain important means and their ends, proximate or ultimate, but to ascertaining the nature of the ultimate end to which the means of society should be adapted.

The science which results from this mode of application has not, up to the present time, been given a distinctive name. The name political economy is reserved for the science of wealth, so far as we have one. The name politics is reserved for an indefinite subject, concerned with the constitution of the ideal state—minus any logical means of distinguishing between a true and a false ideal. The name political science is reserved for a rather loose aggregate of subjects, including political economy, sociology, politics, government, and sometimes history.

These names being already reserved, it becomes necessary to coin a new one for the subject which I propose to discuss. Although related to the political sciences already named, and including such parts of them as can be usefully applied, it has a more definite and yet wider scope, and a greater importance to mankind than any of them. As applied sciences are by common consent termed engineering sciences, and as the subject to be discussed is an applied, or at any rate, an appliable science, I propose to call it political engineering, which may be defined as the science which treats of the adaptation of the means of society to its end.

The first requirement in the adaptation of any means to its end is a knowledge of the end to be attained. Hence the first requirement of political engineering is the discovery of the end to be attained by society, which I shall assume, not arbitrarily, to be that one among possible ultimate ends of greatest in-

terest to society. The first lecture, therefore, will be devoted to the attempted fulfilment of this first requirement.

Ι

THE PHILOSOPHY OF UTILITY

End of society to be attained by doing right and avoiding wrong. Proposal to discover difference between right and wrong. Objections. Counter-objections. Science as a guide to the problem. Situation which raises question of right and wrong. Choice of alternative acts. Different alternatives involve different degrees of interest. Personal and impersonal interest. Maximum impersonal interest. Verbal problem of right and wrong. Nature of intrinsic interest. Confined to conditions of consciousness. Interesting and uninteresting conditions. Meaning of approval and disapproval. Conscience. Meaning of happiness and unhappiness. Approval, disapproval, happiness and unhappiness include everything of intrinsic interest. All moral codes either intuitional or hedonistic. Code of conscience-intuitionism. All accepted codes variations of intuitionism. General mode of concealment of intuitional test. Special examples. Usual origin of intuitional codes. Moralists have identified ethics with intuitionism. Futility of intuitionism. Arbitrary and of no impersonal interest. Happiness and unhappiness as basis of code. Vary in quantity but not in kind. What hedon-

istic code is of maximum impersonal interest? Code of utility. Nature of a reason for an act. Reason vs. conscience as test of moral codes. Contrast of utilitarianism and intuitionism. Circle of intuitionism. Cause of confusion about the moral value of happiness. Possible identification of codes of conscience and utility. Utility the moral code of science.

In the present lecture I shall undertake to establish a science of political engineering, not upon vague "moral ideals," alleged "natural rights," mythical "social compacts," or other arbitrary foundations, but upon the simple and unassailable assumption that the goal of nations or of society is to do right, and to avoid doing wrong. Our initial problem, therefore, will be to discover, if possible, the difference between right and wrong. This may seem an ambitious task, but it is an unavoidable one unless we are satisfied to establish one more political science without foundation.

The objection will at once arise that such an attempt has been made a thousand times before without any practical result, that it

is impossible to get men to agree upon the nature of right and wrong, that the ultimate grounds of human conduct have eluded discovery, that all attempts to discover them have resulted in chaos, and that the so-called science of ethics, which is supposed to deal with such matters, is notoriously futile and out of contact with practical life.

Admitting all these things, I bring the counter-objection that in order to adapt means to an end, a knowledge of the end is a necessity—and necessity knows no law. To the contention that the moral foundations of conduct established by the recognized methods of ethics are arbitrary, I oppose no objection—indeed this is why our civilization while successful materially is unsuccessful morally—but to the inference that therefore no foundations which are not arbitrary can be found, reasonable objection may be opposed.

For consider a moment. Physical sci-

ences have foundations which are not arbitrary. It is everywhere recognized that the postulates of logic, on which all physical science rests, are not based on the opinions of any individual or body of individuals, or otherwise subject to accidental influence. Surely the principle of contradiction on which deductive logic rests, the proposition that what is, is, is not arbitrarily determined. That is not true under Christianity or feudalism and untrue under Buddhism or capitalism, is it? The multiplication table is not an accident of history. And the principle of the uniformity of nature, on which inductive science rests, though not sharing the certainty of the principle of contradiction, shares its freedom from arbitrary assumption. Can it be then that a foundation for applied science which is not arbitrary is undiscoverable? We should not at any rate be willing to admit it until it is proved, and certainly not until we have ascertained what

may be accomplished by the application of the method which has been successful in the case of the physical sciences. That method may render the nature of a reasonable act as comprehensible as it has rendered the nature of a reasonable belief. If it does, the possibilities for good become illimitable, for a genuine moral science can create a moral civilization as successful as the material civilization which a genuine physical science is already engaged in creating.

Despite the prevailing view then that the scientific method cannot be applied to moral questions, I propose to attempt its application, not without hope of making some progress toward the elucidation of a guide to applied science corresponding to that which logic provides for physical science.

The best way to begin our quest for the difference between right and wrong will be to describe the situation which has suggested the problem to men.

Every individual at practically every moment of his waking life finds himself confronted with the power of acting in any one of a vast number of different ways; he has presented to him an array of possible alternatives, between which he is continually compelled to choose. Now if he is not to be a mere automaton, he must have some sort of guide in making his selections. He finds that it is by no means a matter of indifference to him how he acts: that is, how he chooses among the alternatives available, and through the continual teaching of experience there is gradually formed in his mind the concept of a distinction between those acts which it is in his interest to select, and those which it is in his interest to avoid. Gradually also the notion of degree of interest arises, and he seeks continually for clews which will enable him to choose those alternatives which will be in his interest in the highest degree. His efforts in this di-

rection are attended with varying degrees of success, but whenever he thinks he has succeeded in making the proper selection, he is inclined to express the fact by saying that his action is right, and when he thinks he has failed he expresses it by saying that his action is not right but wrong.

This use of the words right and wrong is, of course, an exclusively egotistic one. It is the usage of a being who does not look beyond his own individual interests. It would be universally employed only by children or primitive men who have not advanced beyond the purely egotistic stage. Nevertheless, it is a common usage, even among people of education and altruism, being employed to express a distinction between acts, when their consequences to others need not be taken into account.

To a person of any maturity of experience, of course, it is clear that the way in which individuals select between the possi-

ble acts available to them is often, or generally, of interest to others besides themselves, often to many others. The problem of how to guide the acts of men so that they will serve the largest interest possible, so that they will be in the highest degree in the interest of mankind as a whole, comes finally to be suggested to the minds of those who concern themselves with such things, and those who try to solve the problem are known as moralists.

The problem presented to the moralist then is to discover that difference between human acts of maximum interest to mankind as a whole; and I shall assume that the word right is reserved as a name for those acts which must be selected if results of maximum interest to mankind are to be secured, and that the word wrong is reserved as a name for the alternatives to such acts of maximum interest. The fundamental rule or rules by the observance of which

men may be successful in selecting right and avoiding wrong acts, is called a code of morals.¹

¹ It is unfortunate that in discussing a question like that of the difference between right and wrong it is necessary to discuss a real and a verbal question at the same time. The use of these words with all their confusing connotation might in a strictly technical discussion be avoided by using technical, uncontaminated symbols, such as x and y, but this is impractical in a semi-popular presentation. As above indicated, what we are really seeking is to discover among the courses of conduct open to society, that one which it is in society's greatest interest to select, and technically, it is a matter of indifference what verbal symbols are selected to express the distinction sought. We might call an act in consonance with the course of conduct in question an x-act, and one not in consonance with it a v-act: but the verbal habits of men are such that this really scientific procedure would seem to them to remove the discussion from the realm of practical things. So we are compelled to select such terms as "best act" and "less than best act," "most useful act," and "less than most useful act," or more briefly, "right act" and "wrong act," and thereby raise the host of verbal questions which these much used and abused symbols involve.

If then anyone objects to the sense in which the words right and wrong are used in this discussion, let him remember that I am entirely willing to substitute the symbols x and y for them, x standing for an act in consonance with the course of conduct of greatest interest to society, and y for any alternative of such an act. By a simple shift of symbols of this sort the purely verbal diffi-

For the remainder of this lecture, I shall act in the capacity of a moralist, and, having first suggested rather vaguely the general nature of the problem, shall begin the quest after its solution by seeking to render it more definite.

Now men are, and must be, impelled to distinguish between right and wrong, as

culties of our exposition may be avoided, since the distinction under discussion, expressed by any other names than right and wrong, is just as important to society. If by an examination of the content of human consciousness some pursuable end, of greater intrinsic interest to society as a whole than the one hereinafter distinguished, can be discovered, the test of right proposed can be invalidated, but no other way of invalidating it is apparent. Certainly no reference to traditional uses of the words right and wrong can do it.

In this, as in many other cases of the use of verbal symbols, any attempt to adhere to usage would lead to hopeless confusion, since usage requires many terms to be used equivocally. When words are used merely as instruments for the expression of ideas, as they are in the present essay, their first essential is not adherence to usage but univocality, though sometimes a compromise between clearness and custom is required in order to avoid an over-multiplication of terms. It is essential to keep this in mind if the raising of purely verbal issues is to be avoided.

they distinguish between black and white, or hard and soft, or bitter and sweet, by something which they perceive in their minds, by something present in their consciousness. The difference between right and wrong must be a difference to be perceived in experience, since the only things of interest because of what they are in themselves, that is, of intrinsic or ultimate, as distinguished from proximate, interest, are states or conditions of consciousness. A distinction between the interesting and the uninteresting does not exist outside of consciousness. A stick or a stone has no interest in anything.

If we examine experience closely from the point of view of a moralist, seeking the nature of the thing we have called interest, or intrinsic interest, we see that it can be divided into two kinds or classes. First, those kinds of experience which arouse some sort of concern in us, which are of sufficient im-

portance or consequence to fix our attention in some degree. Second, those which are utterly unimportant and inconsequential; to which, in a word, we are completely indifferent. Let us call the first kind interesting experiences, and the second kind uninteresting experiences.

Now as we are seeking something of maximum interest to mankind, it is clear we can throw out the class of uninteresting experiences at once. We shall certainly not find what we are seeking among them. This narrows the quest to the class of interesting experiences, and we must next try to classify them.

Should any normal person see or hear of the abuse of a child, a sentiment of displeasure or dislike would be aroused in him. Should he see or hear of the betrayal of a trust, he would probably find a sentiment of the same kind arising. Should an act of theft, or lying, or hypocrisy, or meanness,

or bestiality, be brought to his attention, it is probable that a similar sentiment, varying no doubt in intensity, would be recognizable if he analyzed the contents of his mind with sufficient care. Changes brought about through the agency of inanimate objects alone do not arouse this peculiar sentiment, nor is it often generated by the acts of animals, except such as share, in a greater or less degree, man's faculty for distinguishing between different courses of conduct. The sentiment thus exemplified is a very familiar, conspicuous and interesting one in the experience of men, and is for that reason well worthy of a distinguishing term by which to express it. We may call it the sentiment or feeling of disapproval or disapprobation.

In sharp distinction to the sentiment of disapproval or disapprobation, there is to be found in the mind a variety of experience which may be appropriately called the sen-

timent of approval or approbation. So common is it, and so familiar its relation of contrast to the sentiment already exemplified, that no time need be expended in explaining its characteristics. The same act seldom or never arouses in the same individual the sentiments of approval and disapproval simultaneously; but there is usually a large class of acts which arouse neither sentiment. These, however, we may for the present ignore.

The presence of these two peculiar varieties of interesting experience in the mind of man has led him to the concept of a so-called conscience or "moral faculty" inherent in man's powers of perception, by means of which he is enabled to distinguish directly between moral and immoral acts. Policies or collective acts, and codes, and character as a cause of acts, may also be classified as moral and immoral through the discriminative powers conferred by the moral faculty.

The terms moral, good, or right; and immoral, bad, or wrong are usually used indiscriminately as means of expressing distinctions due to conscience.

When the sentiments of approbation or disapprobation are more or less feeble in intensity it is not always customary to connect them with the concept of a conscience, but as no valuable distinction based on the degree of intensity of these sentiments is to be perceived, we may ignore the highly variable and arbitrary distinction based on usage, and postulate that a conscientious act is one which is approved, an unconscientious act, one which is disapproved.

Having thus distinguished and named two distinct qualities of experience, characterizing two corresponding classes of interesting experiences or perceptions,² let us consider next the conditions of conscious-

² In these lectures the word perception will be used in its older and looser sense, signifying merely a state, condition or quality of consciousness.

ness present to our minds under the following series of circumstances: While eating a good dinner when hungry, while drinking a glass of water when thirsty, while reading an interesting book, while playing an interesting game, while contemplating the completion of a task well done, while hearing of the recovery of a loved one from dangerous illness.

These experiences differ from one another in many respects, but they have one common quality, absent in many other suggestible experiences. This quality we may express by the term happiness, and we shall retain this term to express this quality whenever and wherever it may occur, from whatever source proceeding, and whatever its variation in degree.

It would be easy similarly to exemplify the term "unhappiness" by enumerating a variety of experiences possessing no quality in common save that to be expressed by said

term, but as I have done this elsewhere, and as its relation of contrast to the term happiness is generally understood, it will suffice to say that the word unhappiness expresses the common quality of unhappy or painful experiences, as the word happiness expresses the common quality of happy or pleasurable experiences.

Happiness or pleasure may be said to be the common quality of experiences which are per se to be preferred to oblivion or no experience at all, and unhappiness or pain to be the common quality of experiences to which oblivion or no experience at all is per se to be preferred.

We have thus at some trouble essayed the essential task of fixing unequivocally the meaning of certain important terms, viz., approval or approbation, disapproval or disapprobation, happiness or pleasure, and unhappiness or pain, and the meanings herein assigned to these terms will be retained in-

dependent of whatever usage others may have adopted.

Now careful examination of my own mind, and of the minds of others, so far as these may be examined through conduct, and language, verbal or written, leads me to the conclusion that the four attributes of experience named, complete the list of perceptions which are of importance to man. In other words, there are four, and only four, kinds or qualities of interesting experiences or perceptions, viz., approbation, disapprobation, happiness and unhappiness. These are the only qualities of experience which are of any ultimate interest, consequence or importance to the human animal, or so far as is known, to other sentient beings. In the absence of all trace of these four classes of perceptions, the idea of a distinction between good and bad, moral and immoral, or right and wrong conduct, would never have entered the mind of man; all

experiences would be viewed with absolute indifference and the idea of such a thing as a code of morals, or even of a reason for an act, would never have occurred to him.

At any rate if there are intrinsically interesting kinds of consciousness aside from, or independent of, these four, they must be rather unimportant and of feeble intensity, since they appear not to be anywhere clearly distinguished in thought or reflected in language.

Examination of the four classes of interesting perceptions enumerated shows that the members of the first pair and of the second pair respectively bear a peculiar and familiar relation to one another, a relation which permits us to divide broadly all codes of morals into two classes or types. First, intuitional codes based on the first pair of interesting perceptions; second, hedonistic codes, based on the second pair.

That is to say, when men seek to determine whether an act or policy is right or wrong they will always ask themselves either (1) Do I approve it or disapprove it? or (2) What is its effect upon happiness and unhappiness? **

As the object of our search is to discover the difference between right and wrong, and as we shall find it, if at all, in the definitions

⁸ It may plausibly be urged that the sentiments of approval and disapproval contain happiness or unhappiness as essential elements—that a being incapable of the latter qualities of experience would be incapable of the former, and hence that there are really only two classes of interesting experiences. Bentham took this view, confining the term "interesting perceptions" to happiness and unhappiness alone. Fortunately we do not need to meet this objection. The argument to follow in this lecture would be the same whether the objection were valid or not. For, even admitting that the hedonistic qualities of experience are essentials of the intuitional, the fact remains that the latter are no measure of the former, much less are they a measure of the happiness which will result from the commission of any given act, approved or disapproved. Indeed happiness may accompany disapproval and unhappiness approval, and in the absence of reason, an approved act is no more likely to lead to a happy result for mankind than a disapproved one. Hence the issue raised is immaterial to the present inquiry.

based on one or the other of these codes, let us examine them in order.

We may begin with the intuitional definitions. These are:

A right act is a conscientious act.

A wrong act is an unconscientious act.

Ignoring for the moment the matter of their distribution, the only variation in the sentiments of approval and disapproval of interest to men is the variation in their intensity. This ranges within wide limits, and hence the degree of rightness or wrongness of acts has, to the intuitionist, a corresponding range.

Despite the fact that two bases for a moral code are possible, only one is actually accepted in our day, viz., the intuitional basis; for, if the acts which any man calls wrong are examined it will be found that, in every case, they are acts which he disapproves, and if the acts which he calls right are examined it will be similarly found

that they are acts which he does not disapprove. Men often fail to do what they call right, but they never disapprove of doing it. They often do what they call wrong, but they never approve of doing it. In order to judge any act as right, their approval of it in preference to any of its alternatives, is necessary and sufficient.

To convince people that intuitionism is the real basis of all moral codes generally accepted is very difficult, not because the evidence is at all obscure, but because of the wonderful power of habit in automatically concealing the operation of the intuitional criterion from the person who employs it. The psychology of this mode of concealment may be explained thus:

A person, let us say, approves of conduct which is characterized by truthfulness, bravery, generosity and honesty, and disapproves of conduct which is characterized by untruthfulness, cowardice, ungenerosity, and

dishonesty. Expressing these sentiments, he says, "Truthful, brave, generous and honest conduct is right. Untruthful, cowardly, ungenerous and dishonest conduct is wrong." What he feels, of course, is that he approves the first kinds of conduct and disapproves the second, and this feeling is what he has expressed and all he has expressed, in the propositions quoted. His mode of expression and thinking, however, lead him to believe that the quality which he designates in his predicate as "right" inheres in the kinds of conduct which he has designated in his subject as "truthful," "brave," etc., whereas it really inheres only in his own approving estimate of that conduct. This is shown by the fact that had he disapproved the first kinds of conduct and approved the second, he would have reversed his judgment and called the first kinds wrong and the second kinds right.

It is from this tendency to identify con-

scientiousness with rightness, and then conceal the identification by referring to some extrinsic quality of conduct as the ostensible criterion that we find so many extraordinary kinds of conduct designated as right or wrong. Thus, the mediæval inquisitors considered it right to burn heretics at the stake: the ecclesiastical authorities of Massachusetts in 1692 considered it right to hang witches; the Thugs of India deem that to make human sacrifices to the goddess Kali is right; and the ascetics of all ages have taught the righteousness of self torture. All these things have been considered right merely because men approved them; because they identified conscientious acts with righteous ones. On the other hand, the Jews and Mohammedans consider the eating of pork as wrong; the Christian ministers of slave holding days believed any interference with the institution of slavery was wrong, and the Moslem priests of our own

day hold the same view with regard to the institution of polygamy, and again these things have been or are considered wrong, because men have disapproved or now disapprove them.

Some disguises for intuitionism are much more plausible than others, and we may profitably enumerate a few of the more plausible. Thus it is often contended that the approval and disapproval, not of any individual, but of society or the world, is the test of right and wrong-that any act generally condemned is wrong and any act generally commended is right. In examining this contention, however, it is soon shown that men are not consistent. The society they refer to is not society or the world in general, but some particular portion of it whose traditions and training have been similar to their own. They say that other portions of society do not really count, because they do not possess the requisite de-

gree of intelligence or civilization or something of that sort.

Moreover, men usually find that even the test of public approval and disapproval is not an infallible one, and they are able to perceive this by referring to a really infallible test; to wit, their own approval and disapproval. Whenever they find in themselves an impulse to condemn an act commended by society in general or vice versa, they are convinced that, in this particular case, society is under an unfortunate delusion, and therefore not to be trusted. In other words, they are only willing to acknowledge the average conscience to be a criterion of right and wrong when its judgment coincides with their own. But even assuming them willing to support the general verdict in every particular, they do so only because they approve of supporting it, because their conscience tells them to support it, and thus the test of society's appro-

bation and disapprobation turns out to be but a variety of intuitionism.

Another very common contention is that it is not man's but God's approval which determines right and his disapproval which determines wrong, and men seem to think that by thus leaving everything to God they have avoided the fallibility of human judgment. But if this be really so, why will the pagan not acknowledge the authority of the Christian god and vice versa? Why do men only follow the behests of the god of whom they approve? If they obey God only because their conscience tells them to do it, then it is the authority of their own conscience and not that of God which they acknowledge to be infallible, since if their conscience should tell them not to obey God they would disobey him, and this, in fact, is what they always do in such an exigency. This is, for example, just what the Mohammedan does when he refuses to obey the behests of the

Christian god; but he conceals his real guide by claiming that the god whom he rejects is a false and not a true god, and he is quite sure that he has made no mistake in this judgment, because an infallible guide, to wit, his own conscience, has told him so. That is, when men acknowledge the authority of God, it is because they approve of acknowledging it, because their conscience tells them to acknowledge it, and thus the test of God's approbation and disapprobation, like that of the world, turns out to be but a variety of intuitionism.

Again, it is frequently maintained that the real object of man's conduct, the real goal of his destiny, is the development of character, and therefore that acts which tend to make men's character better are right, and those which tend to make it worse are wrong. But if two different kinds of character are described to an advocate of this theory, and

he is asked to say which of the two is the better, he always finds, somehow or other, that the character whose conduct he approves is better than the character whose conduct he disapproves, and if he approves or disapproves of both, then he judges by the degree of his approbation or disapprobation, nor is he able to suggest any other ultimate test of better or worse. Thus the criterion of character is nothing more than the criterion of conscience with the phrases changed, and we can go through the whole catalogue of proposed moral codes and find that all (save the hedonistic) are similarly reducible to intuitionism.

There is, however, one rather subtle mode of concealing the authority of intuitionism which deserves particular and precautionary mention, since it is often successfully employed to confuse the subject. Thus it is sometimes claimed that there is really no ul-

timate or infallible test of right and wrong at all, that "absolute" 4 right is beyond man's power to discover, and hence he must be content with doing what he "believes" to be right, or what is right "to him." Now it is interesting to observe that this plea of man's fallibility is merely a mode of maintaining his infallibility—that this denial of an ultimate criterion of right is no more than a way of affirming an ultimate criterion. the phrase "what a man thinks or believes to be right" is identical in meaning with the phrase "what a man approves"—the two phrases refer to precisely the same class of acts. Hence if a man must always do what he believes to be right, he must of course always do what his conscience tells him to do,

4 Absolute is rather a meaningless word used to confuse many subjects besides ethics. As will be made clear later the scientific moralist does not claim absolute knowledge in the sense of certain knowledge; he only claims knowledge of presumptions or probabilities, leaving certainty to infallible beings, who are to be found, if anywhere, among intuitionists.



which is only another way of saying that his conscience is infallible and furnishes an ultimate criterion of right.

It is, or at any rate should be, obvious that the sentiments of approbation and disapprobation to be found in the minds of men have, as a rule, originated from the similar sentiments to be found in the minds of those among whom they were reared. They have sprung from the accidents of time, place, and circumstance which determine the greater part of the religious, political and social usages of society. In fact, the sentiments which men find in their minds are for the most part the product of the customs prevailing in their age and region of the world, and if not fortuitous, are as valueless in solving the problem of right and wrong as fortuitously determined sentiments would be. This is the usual explanation of the arbitrary character of intuitional codes.

It is also one explanation of the prevail-

ing idea that mankind should pursue not one but many ends-that the standard of man's conduct must be "complex or synthetic." Such a view follows naturally from the fact that the origin of men's intuitions is usually a hap-hazard aggregate or patchwork of traditional obsessions and prejudices, arising from a variety of causes and having no particular relation to one another. This patchwork of traditions generates a patchwork of approbations and disapprobations, which in turn generate a patchwork of ideals, and the result is a patchwork or compound code of morals, the requirements of which have no relation to one another except that they are all approved by the person holding the code.

The impulse to identify righteousness with conscientiousness, and thus with a purely ephemeral and fortuitous code of morals, is not confined to the thoughtless among mankind. So far as I have been able to discover

only one moralist in the history of ethics has resisted it. This was Jeremy Bentham, who designated the intuitional code as the code of "sympathy and antipathy," a most descriptive phrase. He says:

"The various systems that have been formed concerning the standard of right and wrong may be all reduced to the principle of sympathy and antipathy. One account will serve for all of them. They consist, all of them, in so many contrivances for avoiding the obligation of appealing to any external standard, and for prevailing upon the reader to accept of the author's sentiment or opinion as a reason for itself. The phrases different, but the principle the same."

Misunderstanding and disregarding this warning all moralists since Bentham have fallen into the same error. Thus no less an authority than Sidgwick says in his "Methods of Ethics": "We have hitherto spoken of the quality of conduct discerned by our moral faculty as 'rightness' which is the term commonly used by English moralists," plainly

showing that he confuses rightness with conscientiousness, and imputes (correctly) the same confusion to other moralists.

Intuitionism, indeed, is practically universal, not only among the unthinking but among moralists. Nevertheless, there can be no doubt that it does not fulfill the requirements of the moral code we are seeking. That it is based on arbitrary assumptions, we have already pointed out, and this alone would eliminate it as a scientific basis of morals. But the critical test is the degree of its interest. In what sense can it be called of maximum interest to mankind as a whole? Recall for a moment the situation which originally suggested the moral problem to man—the desirability of having a guide to the selection of acts presented to individuals or collections of individuals at definite times and under definite conditions. A moral code has value only as it is applicable in concrete cases. What would the in-

tuitional code mean when so applied? It would say the right act is the conscientious act; it is that act among those selectable at any moment which conscience approves, or if it approves more than one, it is that which it approves most. All others are wrong.

But the question at once arises: Whose conscience? Mankind as a whole has no conscience. There is no unanimity among men's consciences; what is approved by one being disapproved by another. If an act is to be judged by conscience, either each person must judge all acts, his own and others, by his own conscience, which, owing to the difference in men's intuitions, would render most acts both right and wrong; or each person must judge his own acts by his own conscience, leaving all other acts unjudged. either case right and wrong would depend merely on "a point of view," the point of view in turn depending upon a variety of arbitrary circumstances in the nature and

history of the person holding it. But in what sense can any particular act determined in either of these ways be said to be of interest to mankind as a whole? I must admit I am unable to perceive any practical sense in which it can be said.

It is possible of course to contend that a few scattering kinds of conduct might be found to be universally approved or disapproved, and these would be intuitionally interesting to all mankind—or at any rate to the generations consulted. But even if it were possible to identify such common convictions, the terms right and wrong could only be applied to them in an academic sense, since most classes of conduct would by such criteria be neither right nor wrong. Moreover, such criteria in the present condition of enlightenment would be arbitrary and unstable, besides being unascertainable, and hence of no practical interest.

Convictions of right can no more be tested

by their prevalence than convictions of truth. If common agreement were the test of convictions the earth must have been flat, and witch killing right a few centuries ago, because these views would then have been commonly agreed to. The only criterion of righteousness, as of truth, is reason. The convictions of one man that reasons, outweigh those of a billion who do not, and this is as true in the moral, as in the material world.

The fact is, intuitional interest is always personal, or individual. No one has any intuitional interest in the approbation or disapprobation of others, and therefore in any sense in which it could be of help in concrete cases, to say that the intuitional code of morals is interesting to mankind is simply to speak without meaning. Hence if we are to find the object of our search at all it must be among hedonistic codes, the type of code based on the intuitional pair of interesting

perceptions having led us nowhere. Let us then make a new start, and see where an examination of hedonistic interest may lead us.

Now whereas approbation and disapprobation vary in interest only as they vary in intensity, happiness and unhappiness vary in interest as they vary, first in intensity and second in duration; and if we call the product of an intensity of happiness (or unhappiness) into a duration, a quantity of happiness (or unhappiness), it may be said that the hedonistic perceptions vary in interest only as they vary in quantity. But while it is obviously in the interest of individuals or of mankind as a whole to increase the total quantity of happiness experienced, it is to their interest to decrease the total quantity of unhappiness.

The total quantity of happiness experienced by an individual in a given time is the algebraic sum of the several quantities ex-

perienced during that time, happiness being expressed as positive, and unhappiness as negative happiness. Similarly, the happiness of two or more individuals over a given interval is simply the algebraic sum of the happiness, positive and negative, experienced by them during said interval. In general, when we speak of the happiness of mankind, we mean the sum of the several quantities of happiness, positive and negative, to be experienced by the various individuals who compose mankind during the indefinite future, or rather during so much of the future as can be taken cognizance of by the previsional power of science. To make this matter of the measurement and integration of happiness entirely clear and satisfactory would require quite a lengthy explanation, but time will permit of no further elaboration of the subject here.

I would remind you, however, that happiness and unhappiness, as we employ the

terms, cannot vary in kind, because they are not complete experiences, but only conditions or qualities of experience, the qualities indeed by means of which the diverse kinds of happy or unhappy experiences are recognized as belonging to the same class. Happy or unhappy experiences can vary in kind, but in every case their hedonistic interest per se is measured, not by the kind of experience, but by the quantity of happiness or unhappiness it contains.

In order to avoid the verbal issue likely to be raised at this point, it may be said that the use of the phrase "this or that kind of happiness" as the equivalent of "this or that kind of happy experience" is unobjectionable, so long as it is recognized that the non-intuitional interest of such experience is independent of its kind.

From this analysis it is obviously easy to determine which one of the many possible hedonistic codes is of maximum interest to

mankind as a whole. It is that which seeks the maximum quantitative excess of happiness over unhappiness among mankind as a whole, during the foreseeable future; and it is called the utilitarian code. A code which seeks the happiness of the individual (egotism), of the family (ecciotism), or even of the nation (patriotism) is evidently of less interest to mankind than one which seeks the happiness of mankind as a whole. Hence, keeping in mind the original object of our search, we may express the utilitarian definitions of right and wrong thus:

A right act is that act among those available at any given moment which presumably yields the maximum excess of happiness over unhappiness for mankind as a whole.

A wrong act is any one of the alternatives of a right act.⁵

⁵ Strictly speaking, these definitions express only the humanitarian code, utilitarianism consulting the interests,

For convenience the presumption of happiness of an act or alternative at the moment of its availability is called the utility of that act or alternative, and using this improved terminology, our definitions may be expressed thus:

A right act is an act of maximum utility. A wrong act is an act of less than max-

imum utility.

The meaning of the words "should" or "ought" as employed by the utilitarian is derived from the meaning of the word right; an act which should or ought to be done being a right act, and one which should not or ought not to be done being a wrong act.

It is clear that in a brief discussion like the present we cannot enter into the question of how presumptions as to the quantity of happiness or unhappiness which will result

not alone of man, but of any and all sentient beings. For the sake of brevity and convenience of exposition, however, the distinction between the two codes is ignored for the present.

from a given act are determined. It must suffice to say they are determined in the same way as other presumptions—by the exercise of logical processes, i. e., of reason—a reason for an act being any evidence indicative of its utility, just as a reason for a belief is any evidence indicative of its probability. And just as we have provided a sufficient reason for a belief when we have shown its probability to be greater than that of opposing beliefs, so we have provided a sufficient reason for an act when we have shown its utility to be greater than that of alternative acts.

The main point to be emphasized in closing this lecture is that men, in following their conscience instead of their reason, have been put entirely off the track in their search for the distinction between right and wrong, and that expositors of the so-called science

⁶ For a more thorough treatment of this subject and utility in general, see Economy of Happiness, Chap. 3.

of ethics (with the exception of Bentham) have been in the position of the blind leading the blind. As Bentham charges, and as Sidgwick admits, they have persistently identified ethics with intuitionism, thus rendering the whole science barren, and if they have allowed hedonistic considerations to weigh at all, have done so only on intuitional grounds, with the result that the fundamental distinction between the two primary types of moral codes has been obscured. Like Mill, they have advocated the pursuit of happiness merely because they approved of so doing, thus making the code of utility appear as only one more variation of intuitionism, and confusing intuitionists who approve a utilitarian code with true utilitarians, who repudiate the sanction of approval altogether. It is true that an intuitionist who approves the utilitarian code is

⁷ Unfortunately this is what is generally understood by a utilitarian.

in as sound a position practically as a utilitarian—at least, so long as nothing occurs to alter his sentiments of approval or disapproval—but he is in as unsound a position logically as any other intuitionist.

It is also true that the utilitarian finds in his own mind the same feelings of approval and disapproval, the same sentiments of sympathy and antipathy that the intuitionist finds in his. The difference between the two is that the intuitionist appeals to such sentiments as trustworthy guides to conduct, whereas the utilitarian ignores them as untrustworthy. The utilitarian may agree exactly with the intuitionist in what he approves and disapproves, and yet disagree as to what code of conduct is of maximum interest to society. It is clear that if men reject the sentiments of approval and disapproval of others as a guide to conscience as they habitually do—then, unless they have reason to ascribe to themselves peculiar quali-

ties of omniscience, they must, to be consistent, reject their own.

The practice of opposing approval to disapproval is the bane of all ethical discussion. It completely blocks the search after righteousness; yet it is the universal method of intuitionism. Commenting on the futility of the practice, Bentham very pertinently inquires "whether when two men have said 'I like this' and 'I don't like it,' they can (upon this principle) have anything more to say." It is the explanation of the notorious fact that disputes about morals never lead anywhere, but leave all parties just where they started. Intuitional criticism is merely an attempt to make one conscience the test of another. Wherever we observe one man criticising the acts or attitude of another, on ethical grounds, we find that, in its final analysis, the criticism amounts to no more than "Why don't you approve what I approve and disapprove what I disapprove?

Why don't you guide your conscience by mine? You can never be right till you do." This is all there really is to any such criticism, whatever the ostensible authority invoked; for though intuitionists may accept the conscience of God or of the world, as a proximate criterion, their own conscience is the ultimate one. The only alternative to the code of utility is the code of futility.

The utilitarian takes reason as his guide to conscience, not because he approves of doing so—perhaps he doesn't—but because it is to the maximum interest of mankind to do so. Conscience cannot tell us what we ought to approve—it can only tell us what we do approve. Only reason can tell us what we ought to approve. Any accident of education can determine what is conscientious, but reason alone can determine what is right; and hence in formulating a code of morals reason should be our only guide. Conscience is of value only as a

means of causing men's conduct to conform to a moral code. It is of no value as a means of discovering a moral code. Most men will concede, in words, that conscience must itself be guided by a righteous moral code in order to be a safe guide to conduct —the innumerable examples of misguided conscience furnished by history impresses this much upon them; but in practice they repudiate the concession. For they insist on employing their conscience as a guide, not only to their conduct, but to their moral code. That is, they employ a given code as a guide to conscience, but, they have first employed conscience as a test of that code. This is obviously but one way of guiding conscience by itself, that is of not guiding it at all. is a vicious circle from which no man can be delivered so long as he remains an intuitionist, for, however carefully the intuitional moralist may seek to found his system upon this or that extrinsic principle, so long as

his own approval is the test of the principle, he is moving in a vicious moral circle, and is all the time tacitly assuming the very criterion which he supposes himself to be seeking.

The history of ethics clearly indicates that all moralists have recognized that happiness has some sort of central or fundamental place in morals; but whenever they tried to fix its place they encountered the intuitional perceptions with which all our minds are littered, and became bewildered by them, because they could formulate no purely hedonistic code which was universally compatible with their intuitions. They did, what anyone can catch himself doing, they made what they did approve the test of what they ought to approve; and hence as they did not, as a rule, happen to approve all the consequences of utility, they concluded that they ought not to approve them. They had not conducted a preliminary survey and analysis of

the nature of interesting perceptions, and hence did not perceive that the intuitional perceptions could be safely ignored, thus leaving the road clear to the recognition of the true place of happiness in morals. were like those persistent bees which we have all seen who, in seeking the light, try to fly out of the window through the window pane when the window is wide open a few inches away. For hours they dash themselves futilely against the glass because they do not recognize the nature of the obstacle to their progress, and hence do not try to avoid it. Similarly, moralists in seeking the right have for centuries dashed futilely against the intuitional perceptions which stood between them and their goal, because they did not recognize the nature of the obstacle to their progress, and hence did not try to avoid it. The moralist who once comprehends the true nature of his intuitional perceptions, like the bee who once wakes up to the true nature

of glass, perceives that through them there is no thoroughfare to his goal. Hence he abandons them entirely and attains his object by following the clew offered by the hedonistic perceptions alone, as easily as does the bee when he abandons his glass beating, and flies through the open window.

Although it adds nothing to the strength of the utilitarian position, it may perhaps add to its popularity to point out that the reconciliation of all codes of morals can be attained by the acceptance of the code of utility, but is otherwise unattainable. Should all consciences be trained to approve the utilitarian code—and all consciences should be so trained—then the ideals of intuition and reason would coincide, and whichever pair of interesting perceptions were used as a test of conduct the verdict would be the same. The aim of conscientiousness and righteousness would be identical.

But with the rejection of the code of util-

ity, such a condition of harmony would be impossible. An irreconcilable conflict between human consciences, or some of them, and human happiness would ensue, founded on nothing more vital than accidents of training. The code of conscience can conform to that of utility without losing its character. Men can be as conscientious in seeking the ideal of usefulness as in seeking any other ideal, but the code of reason cannot seek any other ideal without losing in rationality. Intuition can be made to conform to reason and remain intuition, but reason cannot be made to conform to anything else without becoming unreasonable.

While in this lecture it has not been rigorously shown that the code of utility is the only scientific basis of morals, a sufficient analysis of the scientific method can be made to strongly indicate it. It must here suffice to point out that it meets the requirements of the basis of morals which we set out to

seek, because, in the first place, it constitutes a moral code of maximum interest to mankind, and, in the second place, it involves no arbitrary assumptions. It is totally independent, not only of any individual's opinions or convictions, but of the opinions or convictions of all mankind. Indeed, it would not lose one iota of its interest to mankind if men were as incapable of convictions as a blind man is incapable of sight. It depends for its interest entirely upon the nature of happiness and unhappiness, and is as little determined by the economic or other accidents of history as are they. It is no more an invention than the feelings of pain and pleasure are inventions and is capable of losing its interest only when those feelings no longer constitute elements of sentiency.

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THE HAPPINESS OF NATIONS

Some difficulties of utilitarianism. Approximation of intuitional codes to that of utility. Christianity and utility. Higher and lower forms of happiness. Confusion of means and ends. Examples. Causal relation between widely approved codes and utility. Economic code of commercialism a special case of this. "The Wealth of Nations." Mercantilism and commercialism. Commercialism and utilitarianism. Confusion of wealth and happiness. Abstract vs. concrete professions. Inconsistency of orthodox economics. Result in reversing proper relation of life and wealth. Method of political economy involves sacrifice of end to means. Method of political engineering. Meaning of total quantity of happiness of nations or society. End of utility to be attained by human acts. Voluntary and involuntary acts. Useful and useless acts. Acts should be confined to useful class. Consumption and production. Motive for, and object of, acts. Positive and negative consumption. Pleasurable and pleasureless production. Relation of production and consumption. Compulsory and spontaneous production. Tastes and needs. Kinds of consumption. The consumptive-productive principle. Immediate results not tests of utility. Division of life into fractions. Indicative ratio, Contrast of requirements of commercialism and utilitarianism. Political economy treats wealth as an ultimate, political

engineering as a proximate, end. Recognition of the ultimate interest of society essential to a usefully appliable political science.

In the last lecture we sought to formulate a scientific basis of morals as free from arbitrary assumptions as the scientific basis of knowledge is admitted to be. Such a formulation, if successful, provides us with the ultimate end or object of human conduct, in the sense that it provides an end of maximum interest to mankind, and one to the attainment of which the conduct of men can be made a means. Pending the presentation of competent evidence to the contrary then, we may assume that we are in possession of the first indispensable requirement of a trustworthy guide to the conduct of society—to wit, a knowledge of the ultimate end or object of that conduct.

It must be admitted, however, that the route by which we arrive at the utilitarian code of morals is so unfamiliar and its re-

pudiation of conscience as a guide to conduct is so unusual that many difficulties and perplexities arise in the mind of anyone who encounters it for the first time. To clear them all away is beyond the scope of the present lectures, but I shall try to clear away some of them.¹

The utilitarian code may be compared to an abstract formula in algebra like the binomial theorem. What it means, and how it is to be applied to any particular problem, does not at first sight appear at all plain. It requires quite a few concrete examples of its application to render the mode of using it obvious. Before we are through with these lectures, however, the significance of the code of utility, and a mode of using it to solve concrete problems of deep hu-

¹To anyone finding difficulty in accepting the code of utility, a reading of J. S. Mill's essay on Utilitarianism is recommended. While Mill does not recognize the basis on which utilitarianism rests, he treats the common and obvious difficulties it presents with great clearness.

man interest will, I trust, become fairly obvious.

One of the first difficulties suggested by the last lecture will be something like this: If, as was there asserted, intuitional codes have always guided men, how is it that we see so much striving all about us to increase human happiness and decrease human unhappiness? In spite of their intuitionism, many people seem to practice a pretty good substitute for utilitarianism. If they have never known where they were going, how have they happened to stumble upon a path leading so nearly in the right direction?

Now it is a fact that the greatest moralists of all ages have urged men to practice conduct, which, in considerable measure, coincides with that required by the theory of utility, and the significance, if not the explanation, of the fact is probably to be (at least partially) found in the close psychological bond subsisting between the four classes of

interesting perceptions; a bond the physiological basis of which we do not at present understand but one close enough to produce a strong tendency in reflective minds to approve, in a general way, those courses of conduct which lead to happiness and disapprove those which lead to unhappiness. other words, the fact that an act is likely to produce happiness among men quite frequently tends to cause altruistic persons to approve it, and this is doubtless why we find such persons, in spite of their intuitionism, so often approximating a utilitarian code, and why it sometimes appears as if they had grasped the principle of utility itself. Bentham observed this tendency when he remarked:

"It is manifest that the dictates of this principle (intuitionism) will frequently coincide with those of utility, though perhaps without intending any such thing. Probably more frequently than not, and hence it is that the business of penal justice is carried on upon that tolerable sort of footing

upon which we see it carried on in common at this day. For what more natural or more general ground of hatred to a practice can there be than the mischievousness of such practice? What all men are exposed to suffer by, all men will be disposed to hate."

The Christian code of morals is an example of how closely intuitionism can approximate utilitarianism in the mind of a great moralist. That code is epitomized in the golden rule—"Do unto others as ye would that others do unto you." This is no more than a deduction from the code of utility expressed in untechnical language; language which everybody can understand. Expressed in technical language it would read thus: "Consider not the distribution of happiness. Consider only its total quantity." It is useful to throw this proposition into the form employed by Christ because of man's egotism. Man is naturally egotistic; he is more concerned in securing a particular

distribution of happiness, viz., a distribution whereby he will get as much as possible than in promoting the totality of its output. But, as we have already seen, utilitarianism is concerned only with the total quantity of happiness. Distribution does not concern it. Hence the necessity, if we would deflect man's conduct from egotism to utilitarianism, to emphasize the altruistic requirement, and this is the key to the wording of the golden rule. Christ does not say "Love thy neighbor less than thyself," neither "Love thy neighbor more than thyself," but "Love thy neighbor as thyself." Here again he says in effect: "Consider not distribution. Be absolutely impartial, and aim only at totality. Make a practice of considering one man as good an agency in which to generate happiness as another, and make no exception of yourself." Had man been overaltruistic, as he is over-egotistic, if he had been so constituted as to neglect his own

happiness in the degree in which he now tends to neglect that of others, the golden rule would be worded differently. It would read: "Do unto yourself as ye would do unto others." This amounts to the same thing as the present reading: that is, it says: "Aim only at totality, ignore distribution"; but the emphasis is changed, corresponding with the assumed change in psychology.

The fundamentals of Christianity, in fact, like the fundamentals of all great moral systems, are merely rules for practicing a sort of rough and ready utility as between man and man, and this application of utility is vitally important, but no historic moral system is adequate to the guidance of nations, or of society, because none are sufficiently clear or sufficiently comprehensive, and none are urged upon the proper grounds.

While it is indeed fortunate that men, in a general way, tend to approve happiness and disapprove unhappiness, and thus per-

mit humanity to get along "upon that tolerable sort of footing which we observe about us," no applied science of society worthy of the name can afford to build its superstructure on such an inadequate and precarious foundation as a vague and groping intuitional tendency. It is important, not only that men should understand clearly what kind of conduct the code of utility requires, but on what grounds it requires such conduct. If they do not, they can easily be put entirely off the track, and experience proves that they are off the track a good deal of the time, and even take the back track without knowing it.

Thus a very common and familiar variation of intuitionism is that which divides happy experiences into higher and lower forms or kinds on intuitional grounds, the approved kind generally being called true happiness, the disapproved kind, mere pleasure—although inconsistently enough there is

no corresponding division of unhappy experiences into higher and lower classes. Such a classification of experience is of course as futile as other intuitional distinctions. Yet an analogous distinction between causes of happiness can be made on grounds of utility, for, while happiness per se is never harmful, certain methods of seeking it may be. Many practices, for instance. which may yield happiness as an immediate effect, have remote effects involving a more than corresponding amount of unhappiness, and should thus be avoided on grounds of utility. Vices in general are examples of such kinds of conduct. The utilitarian, recognizing the reason for this distinction is in no danger of being misled by it; but the intuitionist, with no guide but the intensity of his feelings of approbation or disapprobation, is likely to lose his sense of proportion in the contemplation of certain causes of pleasure, as in the case of the Mohammedan

slave traders mentioned by the explorer Livingstone, who regarded the eating of pork as a sinful form of indulgence much more to be abhorred than the enslavement of human beings.

Another common and much more injurious way in which men sidetrack themselves, as they grope earnestly but intuitionally for utility, is by confounding happiness with some one of its prominent causes; that is, by mistaking a proximate for an ultimate end.

For example, it is often urged that happiness as a goal cannot be successfully sought because what is happiness to one man is unhappiness to another. If this proposition were literally true, it would indeed render the search for happiness futile, but only because in a world in which contradictions are to be met with, the search for anything would be futile. If you start to search for anything on the principle that what is is not, you won't get far, and literally interpreted,

the proposition cited is only one way of saying that what is is not. It says that happiness is not happiness. Those who make this trite observation, however, really mean something else. They mean that what causes happiness in some, causes unhappiness in others. But when thus interpreted, it may be admitted to be quite true without involving any crushing discouragement to him who seeks the goal of happiness. As well might a farmer be discouraged because what will cause turnips to grow in one place will not cause them to grow in another. As well might a fisherman be discouraged because what will make fish bite at one time will not make them bite at another. As well might a cook be discouraged because a dish which suits one person will not suit another. Farming, fishing and cooking are possible and useful in spite of these adverse conditions of nature and human nature, and political engineering is in no worse a position.

Again, you will often hear it remarked that to have too much fun is a bore, that pleasure too long continued becomes tiresome, or to put it baldly that happiness prolonged becomes unhappiness. The last mode of statement shows that this assertion taken literally is again a contradiction; it is one of many ways of saying what is is not. Of course, the person who makes this remark -and I have heard it made many timesis really attempting to say that any normal cause of happiness, if it operates too long at a stretch, will cease to be a cause of happiness and become a cause of unhappiness. Such a proposition is quite true, and we shall make use of it later in the present exposition, but in drawing inferences from it expressed in the equivocal form "Pleasure too long prolonged becomes pain," it is usually understood as meaning that pleasure is sometimes not pleasure. As might be expected, the con-

clusions from this contradiction are of the stuff of which chaos is made.

Now this confusion of happiness with its causes, of means for ends, is encountered everywhere in the history of morals. Indeed the obvious relationship of all other alleged ends to that of utility is one of the strongest evidences we have that utility is what all the great moralists have been groping for all along, and what they would have found without difficulty if they had not got all tangled up in intuitionism.

Among the many means to, or conditions of, happiness which have been, or are now, set up as ideals or ends in themselves may be mentioned: life, liberty, the *pursuit* of happiness, progress, truth, religion, law and order, democracy, equality, goodness, loyalty, love, industry, honesty, and many other things.

It is this multiplicity and complexity of the conditions required for the successful

pursuit of happiness which adds another explanation to the one mentioned in the last lecture, of the prevailing view that men should seek many ends instead of one. Intuitionism, however, generally makes moralists favor some one means or proximate ideal; but as can easily be predicted from the nature of intuitionism, different moralists select different ideals as personal favorites. Thus the great philosophical anarchists like Spencer choose liberty, or personal liberty, as the great desideratum; their opponents select order as "Heaven's first law"; Aristotle pitched upon philosophy as the only true end of man; Jonathan Edwards, following the Westminster catechism, voted for the glorification of God; Thoreau urged the simple life; Edward Bellamy set up equality, Henry George natural justice as ideals; Professor Royce deems loyalty the key to all moral mysteries; and Professor Drummond avers that love is "the greatest thing in the world."

It is not surprising in a world in which error so commonly prevails that even a portion of the truth looms so large that when a man once thoroughly grasps such a portion he is likely to mistake it for the whole thing. All these ideals contain a portion of the truth, but he who will sound the depths of all will perceive that, assuming the absence from experience of all four of the classes of interesting perceptions, viz., approval, disapproval, happiness and unhappiness, not one of them will have the slightest interest to any man: and in the absence of the hedonistic perceptions alone, viz., happiness and unhappiness, not one will have more interest to mankind as a whole than the Hindoo ideal of venerating cows, the Puritan ideal of being bored on Sunday, the Thibetan ideal of praising God with a praying machine, or the Chinese ideal of worshiping forefathers.

Should we examine a target at which riflemen had been shooting it would not be diffi-

cult to perceive from the distribution of the shots about the bull's eye, the common object at which the marksmen had been aiming. Similarly, the great moral ideals which men have set themselves to attain, all approximate with varying degrees of accuracy a common ideal; they all reveal a relationship of unmistakable significance to a central goal. It is not a matter of mere chance that they are all grouped about, and causally related in some manner to, the great ideal of utility —the happiness of sentient creation. It is true that this grouping does not result from any such conscious aim as the marksman takes at the bull's eye, yet such is the psychological bond between the two great types of interesting perceptions, that, despite the monstrous teachings of intuitional systems, thinking men in searching for a moral ideal, by an instinct almost rational in its insight, grope their way to the fundamental conditions of happiness. So clear is this relation

between the utilitarian ideal and all other ideals which have ever been seriously proposed that it is easily predictable that had death, slavery, the pursuit of misery, retrogression, untruth, irreligion, anarchy, oligarchy, inequality, wickedness, disloyalty, hate, indolence, dishonesty, and the inversion of all accepted moral maxims been means to happiness they would all have appeared prominently as ideals to be sought by the human race. Opposed as they generally are to happiness they very naturally appear as antitheses of such ideals.

This little review of the way the human mind operates when it seeks a guiding principle to conduct will help us to understand the difficulties which beset any science attempting to guide society without knowing in which direction it should go. The particular means which, in our day, is most often and persistently pursued as an end is wealth, and the science of wealth is political econ-

omy. A sketch of the method by which that science tends to sidetrack the efforts of society, and its unreliability as a guide to those efforts, will serve well as an introduction to the contrasted principles of political engineering; and I shall therefore digress a few minutes to trace the development of the ideal of the modern science of economics, and its mode of encouraging society in its present pursuit of the false gods of commercialism.

The most pressing problem presented to the attention of the members of the animal world is that of getting a living. The struggle for existence is primarily a struggle for subsistence, and it is waged everywhere throughout nature. Man as a member of the animal kingdom has always been confronted with this problem, and as with other animals, it has always absorbed the bulk of his attention.

Originally the problem was presented as a purely individual one. Early man was as

much an individualist as the birds and beasts which surrounded him, but in later epochs the social aspect of the problem has become more clearly defined, and within the last few centuries the question of how a nation may best get a living has, among the few, received something like the attention that the question of how an individual may best get a living has received among the many.

The problem of how nations may or do get their living is the problem of political economy. Thus Adam Smith, the father of modern political economy, defines the problem in "The Wealth of Nations."

"Political Economy, considered as a branch of the science of a statesman or legislator, proposes two distinct objects; first, to provide a plentiful revenue or subsistence for the people, or more properly to enable them to provide such a revenue or subsistence for themselves; and secondly, to supply the state or commonwealth with a revenue sufficient for the public services. It proposes to enrich both the state and the sovereign."

It was natural, when political economy was in its infancy, to infer that a nation should go about enriching itself in much the same way that an individual would, and this is a view which still prevails though it is far from correct.

The earliest economists to whom it is worth while to refer here appeared in Europe in the sixteenth century. They noticed the very obvious fact that a man who had plenty of money had no difficulty about getting a living, and that the more money he had the better he was able to live. They inferred that this fact was an important clew to the secret of national prosperity, and hence they propounded the very simple proposition that the best way for a nation to solve the problem of getting a living—what is now called the economic problem—was to accumulate as much money as possible.

The writers and statesmen who held this view are known as mercantilists and their

theory as mercantilism. For two centuries or more the mercantile system was a potent influence in determining the policy of the states of western Europe, particularly Great Britain, and its influence is by no means dead yet. Gold and silver, being the traditional materials out of which money had always been made, were sought by the mercantile nations with much the same ardor that individuals seek these metals to-day, the idea being that whatever would enrich an individual would enrich a people or nation. To again quote "The Wealth of Nations":

"That wealth consists in money, or in gold and silver, is a popular notion which naturally arises from the double function of money, as the instrument of commerce, and as the measure of value. In consequence of its being the instrument of commerce, when we have money we can more readily obtain whatever else we have occasion for than by means of any other commodity. The great affair, we always find, is to get money. When that is obtained, there is no difficulty in making any subsequent purchase."

Our author then proceeds to point out the mistake made by the mercantilists in assuming that the economic problem was the same for a nation as for an individual. His exposure of mercantilism is too long to quote here, but some of his comments on the system and its supporters are worth quoting:

"It would be too ridiculous to go about seriously to prove that wealth does not consist in money, or in gold and silver; but in what money purchases, and is valuable only for purchasing. Money, no doubt, makes always a part of the national capital; but it has already been shown that it generally makes but a small part, and always the most unprofitable part of it.

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"I thought it necessary, though at the hazard of being tedious, to examine at full length this popular notion that wealth consists in money, or in gold and silver. Money in common language, as I have already observed, frequently signifies wealth; and this ambiguity of expression has rendered this popular notion so familiar to us that even they who are convinced of its absurdity are very apt to forget their own principles and in the course of their

reasonings to take it for granted as a certain and undeniable truth."

You will perceive from this that the great father of orthodox economics, Adam Smith, caught the mercantilists in the act of mistaking a means for an end, or rather one proximate end for another less proximate. and that he was disposed to ridicule their foolishness and shallowness in so doing. He thought that anyone who could mistake money for wealth was committing a very vulgar error. John Stuart Mill also emphasized this familiar fallacy of mercantilism, but in a more tolerant strain remarked that though the error was obvious when once exposed, none but a genius would have failed to swallow it, had he lived when the belief prevailed. And this is true. Had it not been for Adam Smith, or someone with equal ability, every teacher of economics in our universities to-day would be inculcating the principles of mercantilism as assiduously

as he now inculcates the principles of commercialism, for wherever the traditional prevails over the scientific method, education is an echo.

Adam Smith's discovery that "the great affair" of nations is not money but wealth reminds me of a picture I saw long ago. It represented a callow youth standing proudly before his mother dressed in his first dress suit and silk hat. A legend attached to the picture explained the moral thereof. The mother, wishing to warn her offspring against the pitfalls of vanity, observed: "Remember, my son, it is not the clothes that make the man." To which the youth replies: "You are right, mother, it is not the clothes that make that make the man; it is the hat."

Now that boy, I take it, was a budding Adam Smith, fully capable of discovering that it is not the money that makes a nation; it is the wealth. Not that I wish to suggest that Adam Smith accomplished nothing when

he replaced the ideal of mercantilism with that of commercialism. He made a step, and one, on the whole, in the right direction, but in doing so he made the same kind of a mistake for which he criticized the mercantilists: the mistake in fact that moralists are constantly making. He confounded a means with an end. In much the same manner as the mercantilist mistook money for wealth, so he mistook wealth for happiness. Moreover in doing so, he was a victim of the same mental process which misled the mercantilists; that is, he virtually, if vaguely, admitted a proposition in the abstract which he ignored in the concrete. The description of this process is best given in his own words, as recorded in "The Wealth of Nations." Thus, speaking of the mercantilists, he says:

"Some of the best English writers upon commerce set out with observing that the wealth of a country consists, not in its gold and silver only, but in its lands, houses, and consumable goods of

all different kinds. In the course of their reasoning, however, the lands, houses and consumable goods seem to slip out of their memory, and the strain of their argument frequently supposes that all wealth consists in gold and silver, and that to multiply these metals is the great object of national industry and commerce."

By paraphrasing these words which describe so well the attitude of the mercantilists toward commercialism, we may express quite accurately the attitude of the commercialists toward utilitarianism. Thus:

Some of the best English writers upon commerce set out with observing that the happiness of a country consists, not in its wealth only, but in its joys, delights, and satisfactions of all different kinds. In the course of their reasonings, however, the joys, delights and satisfactions seem to slip out of their memory and the strain of their argument frequently supposes that all happiness consists in wealth, and that to multiply wealth is the great object of national industry and commerce.

In other words, the commercialist may be a utilitarian in the abstract, but he is a com-

mercialist in the concrete, and it is only concreteness which counts.

Many, perhaps most, men will admit the abstract proposition that happiness is the object which society should seek. Even the most thoroughgoing mercantilist or commercialist is likely to admit it. The trouble is that they do not get beyond the abstraction. Indeed, any economist will concede that wealth is not an ultimate end, and if pushed a little he will admit that the ultimate end ought not to be sacrificed to it. He will, I think, be disposed to admit that the utility of wealth is the important thing about it, and then he will proceed to get off the track again by saying that utility is the power of satisfying desires or the power of giving satisfaction. At once a vast number of questions and difficulties arise. How are desires and satisfactions to be measured? How are we to distinguish between desires that ought to be satisfied and those that ought

not? When different desires conflict, what is to be done? Why ought desires to be satisfied anyway? These and many other difficulties are ignored, no sane measure of, or distinction between, satisfactions or desires being discoverable in the science of economics. Indeed many able economists explicitly maintain that no such measure or distinction has any importance in political economy, however much it may have in human affairs.

Thus Mill in his "Principles of Political Economy," says: "Political economy has nothing to do with the comparative estimation of different uses in the judgment of a philosopher or of a moralist." De Quincey in his "Logic of Political Economy," observes: "The use contemplated (in economics) is the simple power of ministering to a purpose, though that purpose were the most absurd, wicked, or destructive to the user." And in Thorpe's Dictionary of Political Economy, we find this illuminating explanation of the



economist's point of view: "For an object to have utility it must be desired; it need not be desirable." Economics falls into this indefensible position by reversing the utilitarian method; making desires the criteria of utility, instead of utility the criterion of desires; thereby ignoring the fact that what is desired is no more a test of what ought to be desired than what is believed is a test of what ought to be believed, or what is approved is a test of what ought to be approved.

Mill sagely observes that: "In political economy the greatest errors arise from overlooking the most obvious truths," and he certainly is correct, for among all obvious truths one of the most obvious is that we cannot adapt our means to our end unless we know what our end is; and yet the commercial economists have overlooked it. They are in the position of men who don't know what they want but are bound to get it. They know wealth is not the goal of human con-

duct, but they encourage men to act as if it were.

Now what is the result of confusing the means with the end in the particular case we are considering? I do not mean of the mistake of Adam Smith as an individual, but of the whole commercial world of whose practices and ideals, orthodox economics is but the philosophized expression. The result is nothing more nor less than the deflection of man's best efforts from a true to a false goal. Commercialism indeed does not merely sidetrack man's efforts. It backtracks them. Its requirements are almost the reverse of the requirements of utilitarianism. Instead of devoting wealth to the service of life it devotes life to the service of wealth. The commercialist assumes, or, at any rate, acts on the assumption, that the only thing worth considering about the lives of men is the way in which they affect the external world, instead of assuming that



the only thing worth considering about the external world is the way in which it affects the lives of men; for it is only by employing the lives of the people in the production of happiness that a nation can possibly achieve success.

Clearly recognizing this, let us seek a way of founding upon the theory of utility a science that shall bear to happiness the relation that political economy seeks to bear to wealth—a science that shall enable us to produce happiness as efficiently as we now seek to produce wealth—so that, having formulated its principles, we may be assured that they will not lead us astray by directing our efforts to securing a means at the sacrifice of the end, or to sacrificing the more for the less important end. For it is to be observed that although many ends may be of ultimate interest to society, only one is of maximum ultimate interest. To show then that the consequence of conduct is of some ultimate or

intrinsic interest is insufficient to justify it, since it is perfectly possible to lose the greater by seeking the lesser interest of society, proximate or ultimate. There is no guide to conduct which is "just as good" as the code of utility. There is no substitute for the rule of right.

Now the total amount of happiness achieved by a nation in any given period of time is equal to the amount experienced by the average individual composing said nation during that period, multiplied by the number of individuals. That is, the happiness of a nation is merely the aggregate happiness of the individuals who compose it. There is no such thing as the interest or welfare of society as something distinct from the interest or welfare of the members of society present and future. In order to arrive at an approximate solution of our problem, therefore, we shall consider the life of an average individual. If we can discover to what

kinds or classes of conduct the life of such an individual should be confined, and in what ratio it should be divided between them, we shall have made substantial progress in our quest.

Our object being practical we shall not waste time in discussing means which are not adoptable by men. There is no present way of contributing to the solution of the great problem of happiness except by affecting in some manner the conduct of human beings. So far as we are concerned, to solve the problem means to induce men to solve it. Hence the first and most indefinite principle in our series many be expressed thus:

Human conduct should be used as a means to the end of utility.

Human conduct consists of voluntary acts, and an average man's waking life, with few and negligible exceptions, is made up of such acts. Even if he assumes a condition of inactivity, or minimum activity, he thereby

performs a voluntary act, provided he does it voluntarily.

It is possible to perform acts directed to no particular end pleasurable or otherwise, and adapted neither to increase nor decrease the sum total of human happiness. Such acts as aimlessly snapping the fingers or making other objectless movements are examples. This neutral or useless class of acts may be taken as a convenient point of division between useful and harmful conduct; useful acts being those whose presumption of happiness is greater, and harmful acts being those whose presumption of happiness is less than that of a useless act.

Now it is clear that nothing is to be gained by a man or a community of men by selecting useless or harmful acts. Hence our next principle may be broadly stated thus:

Human conduct should be confined to useful acts.

As all useful acts seek happiness it is clear

that they must seek it either directly or indirectly; that is, the immediate object of the act must be either happiness or the means to happiness. Let us call acts belonging to the first class consumptive acts or acts of consumption, and those belonging to the second class productive acts or acts of production.

By the immediate object of an act is meant that part of the total object which is accomplished without further intervention of voluntary acts, a consumptive being thus in the nature of a completed, a productive in the nature of an uncompleted, act. This enables us to restate the previous principle more concretely thus:

Human conduct should be confined to consumption and production.

At this point it becomes important to distinguish between the motive for, and the object of, an act. Prior to the performance of any voluntary act or chain of acts and presumably bearing a causal relation thereto,

is found in the mind a desire or impulse to perform such act or acts, and this desire may be called the motive for the act. Now the object of an act may, in one sense, be said to be the gratification of the desire which prompts it, and this is, no doubt, one object of all acts. But, it is clearly not the object implied in our treatment of this matter. By the object or the total object of an act in the utilitarian sense is meant the sum of the useful results which it is presumably adapted to secure, the gratification of a motive being only one, and perhaps an unimportant one, of these results.

In the classification of acts developed in this lecture, the question of motive is ignored. The primary concern of utility is with the effects, not with the causes, of acts. Hence motives and the causes of motives are of concern only because they are means to ends, useful or otherwise. Motives are of many kinds and have many causes, and

in the lecture to follow, a general method of utilizing the most prevailing class of motives will be considered, but any adequate discussion of the nature and origin of motives would constitute a digression too lengthy to be included in an essay of this nature.

Motives are no test of the utility of acts though they are one test of the utility of men. A happiness producing act, performed from a selfish motive is more useful than a misery producing act performed from an unselfish one; yet, other things being equal, an unselfish man is more likely to be useful than a selfish one.

It will next be well to again sub-divide the foregoing sub-divisions of useful conduct, considering first consumptive acts. It is obvious that when seeking happiness directly the object is sometimes (1) the attainment of pleasure, and sometimes (2) the avoidance of pain. Let us call the former class

of acts positive, the latter class negative consumption. Sub-dividing productive acts, the most convenient classification for our purpose is into (1) pleasurable production; (2) pleasureless production; the first including those productive acts which are accompanied by an excess of happiness, the second those which are not; usually in fact involving an excess of unhappiness.

Positive consumption is a simple matter to understand; it is merely the technical name for the process of having fun, though when the cause of the fun arouses serious sentiments it is not customary to call it fun, but to use some more solemn synonym. Such forms of recreation or enjoyment as reading, automobile riding, playing games, enjoying the companionship of friends or of nature, are examples of positive consumption, which indeed is that class of acts most closely related to the thing that makes life worth living. But while positive is more

pleasurable than negative consumption it is not necessarily more useful. In fact, it is impossible to say generally that any one class of useful acts is more useful than any other, but it can be said that one such class has a double utility, and that is pleasurable production, since this is useful both as an end and as a means. It is both consumptive and productive, and hence may appropriately be called either consumptive production, or productive consumption.

The fact that pleasureless production and negative consumption, yielding as they generally do, an excess of pain, are yet to be classed among useful acts is a consequence of the deficiencies of nature and the necessities of man.

Where nature is unusually bounteous and man does not put too heavy a tax on her bounty it is possible for him to live practically, if not quite, free from acts of pleasureless production. The naked natives of the

tropical South Sea islands, loafing beneath their breadfruit trees, are in such a position, except in times of war or other calamity. But the number of inhabitants which the earth will support in a laborless condition is relatively small. When the population increases much, man is forced to go to work to supply nature's deficiencies. This economic fact follows from the law of diminishing returns to labor.

Speaking generally, it may be said that man does not find the earth especially prepared to produce happiness in him. Unaltered terrestrial conditions are seldom perfectly or even proximately adjusted to his desires. Thus he is compelled to adjust or adapt them for himself, and it is the present fate of the great majority of adult human beings to spend a large proportion of their lives in securing such adjustment of their environment as is required for their tolerable existence. In short, in order that men

may consume they are compelled to produce, and that form of production which is engaged in because it will lead to consumption is quite generally pleasureless.

To generate happiness in man requires rather a careful selection of acts-much more so than to generate unhappiness; hence acts not particularly selected on account of their immediate happiness generating properties are not at all likely to be pleasurable. Acts selected at hap-hazard for instance would be far more likely to yield an excess of pain than pleasure, and similarly, acts selected solely because they are adapted to achieve means (i.e., productive acts) are not likely incidentally to yield pleasure as a byproduct. They are, in fact, more likely to yield pain, for man is vastly better adapted to the production of pain than of pleasure. It is difficult to imagine a situation in which a man could be placed in which he could not cause himself pain and plenty of it if he

tried to, but the situations in which a man can cause himself any considerable excess of pleasure require deliberate selection. Moreover, the intensity of the pleasure obtainable under the most favorable conditions for securing pleasure could hardly hope to equal the intensity of the pain obtainable under the most unfavorable conditions for securing pain. Production which is practiced because it will lead to consumption then is generally pleasureless, and thus far efforts to render it otherwise have met with but meager success.

These considerations make it worth while to call attention to another sub-division of productive acts which, although not as rigorous as that already proposed, is for many practical purposes worth keeping in mind. Thus productive acts which are performed primarily because they are necessary for subsequent consumption may be called acts of compulsory production. Under present

conditions they are nearly, though not quite, identical with acts of pleasureless production. And productive acts which are performed primarily because they are pleasurable may be called acts of spontaneous production; being nearly, though not quite, identical with acts of pleasurable production. With present day practices a little productive conduct is at once pleasurable and compulsory. So the two methods of sub-dividing production do not completely coincide.

Negative consumption is to be classed among useful acts because of the nature of man's necessities. Man's capacity to experience pleasure and pain develops in him certain desires and these desires may be divided into two classes. (1) Those the gratification of which yields an excess of happiness. (2) Those the failure to gratify which yields an excess of unhappiness. Desires of the first class we may name tastes. Those of the second class needs. When through the agency

of a voluntary act a need is made to result in no excess of pain it is said to be satisfied. When it results in an excess of pain, but a less excess than would have resulted had no act of amelioration been performed it is said to be relieved. As positive consumption is occupied largely with satisfying tastes, negative consumption is occupied largely with satisfying and relieving needs. Had man no needs negative consumption would hardly exist and the less his needs the less it will be required in his life. By far the most important class of pure needs are those resulting from illness-mental and physical. It is these perhaps more than anything else which prevent the production of an excess of happiness among men. In the present condition of knowledge they can practically never be completely satisfied, and can often be only in slight measure relieved.

There is rather a small class of acts which are acts both of negative consumption and

pleasureless production; for example, when a man plunges into some form of hard and useful labor to forget a sorrow. Such acts are, like pleasurable production, both productive and consumptive, but their double character leads to little difficulty in political engineering, since in either capacity they are pleasureless. In this exposition they will be classed with negative consumption.

There is also a considerable class of needs which are at the same time tastes, that is, to fail to gratify them yields pain, but to gratify them yields pleasure. The taste for eating is the most familiar example of these compound desires. In meeting such desires negative grades into positive consumption. Still it is not difficult to distinguish them. When in attempting to meet needs which are also tastes an excess of happiness is produced the act is one of positive consumption. Otherwise it is negative consumption.

A complete and accurate understanding

of the several divisions of useful acts would require a more extended discussion than the present one, but such a discussion would be unprofitable here, since it would only introduce technical distinctions which do not affect the essentials of our subject, and in an outline like this would tend to confuse rather than clarify matters.

Recalling now the fact that we seek the maximum of happiness which life may yield we may formulate the later stages of our discussion into another principle, thus:

The intensity and duration of positive consumption and pleasurable production should be increased among men and of negative consumption and pleasureless production decreased.

For want of a better name we may call this the consumptive-productive principle.

It should be carefully recalled at this point that not all acts adapted to produce happiness locally are useful. It is the total, not

the partial, effect of an act which determines its utility. An act which tends to effect an increase of happiness in one quarter while at the same time effecting a more than compensating decrease in another is not likely to be useful, neither is there use in normally useful means which are devoted to harmful ends. That is, immediately pleasurable acts are not necessarily consumptive acts, nor are all acts of labor, even if successfully adapted to their immediate end, necessarily productive acts. Excessive drinking, for example, and vicious conduct in general, even though immediately pleasurable is seldom consumptive because its total effect is usually harmful. On the other hand, acts which are economically productive are not necessarily really productive. For instance, the creation of great military engines to mutilate and destroy human beings, although involving vast labor, is seldom productive because usually devoted to a harmful end. Such

classes of conduct, though often useful in the commercial sense, are worse than useless in the utilitarian sense.

In parts of this essay to follow I may not, however, adhere strictly to the technical use of the words consumptive and productive here laid down. It will sometimes be convenient to use them in their looser and more restricted and popular sense though in all cases the context is intended to make the deviation sufficiently clear.

It is one of the difficulties inherent in an effort to effect a compromise between technical and popular exposition that common words must sometimes be used in a technical as well as a popular signification, because the coining and use of new terms is no part of popular, though an important part of technical exposition.

Having divided the kinds of acts which are performable in human life into classes of significance in utility, it is convenient to di-

vide life itself into fractions corresponding with them. It is also convenient to recombine them to form other fractions which are worth distinguishing. Thus the portion of life spent in useless and harmful acts I shall call the wasted fraction, that spent in positive consumption and pleasurable or consumptive production I shall call the positively useful or positive fraction, and that spent in pleasureless production and negative consumption I shall call the negatively useful or negative fraction.

As to the ratio which should be sustained between the wasted and the sum of the positive and negative fractions we need waste no time in discussion. In conformity with the second principle established in this lecture, it should always be made as small as possible, zero being the best ratio, since useless or harmful acts can contribute nothing to the end of utility.

The ratio between the positive and the

negative fractions of life I shall call the indicative ratio, because its value, if determined on the basis of utility, gives a very good indication of man's success in adapting his means to his ends. As it is the ratio of the pleasurable to the pleasureless portion of useful life it should, obviously, other things being equal, be made as great as possible; but owing to the causal relation between production and consumption it is quite possible that the ratio may be made too high. In other words, to decrease the ratio might sometimes be more useful than to increase it. Thus it is clear that the most useful value of the ratio for a moderately dense population living in a fertile country would be higher than for a very dense population living in an infertile one, even were all other conditions the same.

The further pursuit of this rather technical discussion will be reserved for the following lecture, while we pause to glance at some les-

sons to be learned from the principles thus far formulated.

Although we have advanced little beyond the threshold of our subject, the acute antithesis between the requirements of commercialism and utilitarianism, between political economy and political engineering, may be made quite plainly manifest. The reason why commercialism devotes life to the service of wealth, instead of wealth to the service of life can be clearly perceived.

Consistent commercialism would make positive consumption a minimum and compulsory production a maximum, for wealth will accumulate most rapidly when its production is a maximum and its consumption a minimum, and in the practice of a policy which would result in such a condition of men's activities commercialism would find its only consistent application. Were the theory of commercialism applied with complete consistency its fallacious character would be-

come plain to all men. But it is not, and never has been, so applied. In practice all nations deviate from it more or less, and thus the delusion of its soundness is maintained. Were it not inconsistent in application it would be intolerable.

Utilitarianism on the other hand would make positive consumption a maximum and compulsory production a minimum, thereby completely reversing the practice required by the theory of commercialism. By adhering to that evil theory the so-called statesmen of to-day, lacking as their mercantile predecessors did, that first essential of statesmanship, a knowledge of the goal of nations, are forcing the state to take a course exactly opposite to that which it should take. Not content with so directing the policy of nations as to make the only life which the average man has to live one of perpetual toil, they direct said toil to the task of dissipating those resources of the earth which should be hus-

banded for the service of a wiser generation. This process, which squanders alike the lives of the present generation and the heritage of their posterity, they call "developing the nation's resources," and the various commercial nations of the earth vie with one another to see which can do its developing most rapidly. As the mercantilist concerned himself exclusively with the nation's "treasure" and its favorable "balance of trade." so the commercialist concerns himself exclusively with its "production" of iron and steel, corn and cotton, pork, codfish, and other kinds of wealth, forever talking about "business," "output," "imports," "exports," etc. deed in our day and country the people are so occupied with this simultaneous waste of life and resources that they have not the leisure to ask themselves what all their bustle is about. They are so busy doing useless or worse than useless things that they have not time to learn the nature of usefulness.

The commercialist centering his attention upon the accumulation of wealth sees the whole economic problem upside down. He regards consumption as worth while only because it leads to production, instead of regarding production as worth while only because it leads to consumption. The only proper functions of consumption which he recognizes in the concrete are, first, that it supports the life and strength of producers while they are producing, and second, that it creates a market which enables producers to continue their activity. He would have men spend their lives not in enjoying wealth but in toiling for it, not in living but in making a living. The utilitarian on the other hand concerns himself more with those policies which will withdraw the lives of men more and more from compulsory production and negative consumption, and expend them more and more upon positive consumption and spontaneous production. The aim of

the commercialist is to render the indicative ratio a minimum: that of the utilitarian is to render it a maximum.

Let me reiterate that the error of the theory of commercialism with all its disastrous practical consequences clearly results from its initial failure to recognize the true aim of nations. It is a consequence of the attempt to teach society how to attain its goal without first ascertaining what its goal is. In this respect it is but a special example of the general rule that whenever a means is pursued as an end, the true end will be sacrificed to that means. Such sacrifices we see everywhere about us. Everywhere we are taught that "life is sacred," that "liberty is sacred," that "property is sacred," but where are we taught that happiness is sacred? And yet it is only because of their relation to happiness that these other things have a trace of sacredness.

That a usefully appliable science of wealth

as a branch of political science is needed there can be no doubt, but political economy as at present expounded is not such a branch because it does not recognize the place of wealth in the scheme of utility. Before discussing its principal subject matter, an appliable science of wealth must first ask and answer the question—What is the use of wealth? Before treating of production, it must ask and answer the question—What is the use of production? Failure to do so will result in the production-madness which is such a marked feature of our time, production being pursued as an end in itself.

The mental process which leads to production madness was well illustrated in a standard text book of political economy which I examined a few years ago. The author in beginning his exposition, desiring to make perfectly obvious the value of his subject to society, asked this question: Which will be the better off, a people who have plenty,

or a people who have not? And answering the question himself, he says it is quite evident that the people who have plenty will be the better off. He then proceeds to deduce from this proposition its obvious consequences. For a people to have plenty they must produce plenty, and to produce plenty they must spend plenty of time in producing. The more time they spend in producing the greater will be their plenty. Ergo, for a people to be as well off as possible they must spend as much time as possible in production. Q. E. D. After this demonstration, he proceeds to expound orthodox commercial economics as the best system for making a people well off.

Now, according to the utilitarian, this economist, like all of his ilk, was off the track. How did he get off? Simply by answering the wrong question first. He started with the question—How shall a people have plenty? He should first have asked himself

-Plenty of what? Is it plenty of certain kinds of things, or plenty of certain kinds or conditions of consciousness that men want? Is it plenty of a particular kind of material thing or of a particular kind of life that they desire? Is it plenty of wealth or plenty of happiness? The economist assumes that it is plenty of wealth that will make men well off, but this leaves undecided which aspect of wealth is most closely related to welfare. Is it the productive or the consumptive? Fixing his attention on the material result of acts, the political economist concludes that it is the productive, because the greater the production the greater the wealth. But the political engineer, fixing his attention on the acts themselves, concludes that it is the consumptive. He does not ask—Do men want plenty? Nor even—Do they want plenty of wealth? Such questions are too vague and indeterminate. He asks-Do men want plenty of the consumption of wealth, or

plenty of the production of wealth? Which kind of life do they want plenty of—the productive life or the consumptive life? The answer to this question is perfectly obvious. They want plenty of consumption (including productive consumption), and this leads to a conclusion very different from that of the economist, who assumes that it is plenty of production that they want. Just how it is different will be made plainer before we are through, but it will certainly require that human life shall be devoted to something more useful than piling up wealth. What should we think of a textile engineer, who in writing a technological treatise for the guidance of those who operate factories to make cotton cloth, should devote himself exclusively to the subject of spinning, ignoring weaving altogether, and endeavor to indicate therein how, by concentrating all the resources of the factory on spinning, the maximum accumulation of yarn could be secured? Is it

not plain that although such a technology might, and doubtless would, contain much which could be made available in a usefully appliable technology, any attempt consistently to practice its precepts would result in totally defeating the object of any plant for the production of cotton cloth, because it would sacrifice the end—cloth—to the means—yarn?

Now wealth is to happiness what yarn is to cloth, and a science of wealth may be devoted exclusively to the subject of wealth production, ignoring happiness production altogether, and may endeavor to indicate how, by concentrating all the resources of human life on wealth production, the maximum accumulation of wealth can be secured. But is it not plain that although such a science might, and doubtless would, contain much which could be made available in a usefully appliable science of wealth, any attempt to consistently practice its precepts

would result in totally defeating the object of any nation desiring to produce happiness, since it would sacrifice the end—happiness—to the means—wealth?

It is true that the economist as an economist must treat the general subject of wealth, but there are many aspects of wealth, and if the science of economics is to amount to anything more than an idle accumulation of propositions, it must treat of wealth, not as an intrinsic, but a proximate end; not as a thing of interest in itself but as a thing of interest to society. To do this adequately and scientifically requires a preliminary examination into the nature of interesting things in general, and it is the failure of economic or other political sciences to conduct such an examination that renders them inapplicable as guides to human conduct. They fail to make their rules rest upon morals, and hence while their propositions may not be generally untrue, they are gen-

erally uninteresting. It is because of this fact that we appeal to the economist to expend as much thought upon the things which wealth is to be used in producing, as upon the things which are to be used in producing wealth; it is on this account that we urge him to make his science at least as much a science of consumption as it is a science of production, and in order to do this he must focus his attention less upon the wealth and more upon the happiness of nations.

III

DEMOCRACY AND EFFICIENCY

Prevailing qualities of human nature. Self-interest and intelligence. Adaptive principle. Theories of social control: anarchy, oligarchy, democracy. Democratic principle. Nature and utility of democracy. Principle of compromise. Efficiency in general. Amount and efficiency of production. Productive rate. Consumptive rate. Efficiency of consumption. Commercial efficiency. Factors of productive efficiency. Industry and skill of producer. Efficiency of productive conversion. Securing adaptation and interest of producer. Effective machinery and organization of production. Factors of consumptive efficiency. Simplicity, variety and interest of tastes of consumer. Law of increasing needs. Efficiency of consumptive conversion. Primary and secondary utility of man. Law of diminishing returns of happiness. Relation of rate to efficiency of consumption. Principle of consumptive equality. Efficiency of distribution. Analogy between fertilizer and wealth. High efficiencies of production and distribution co-essentials to attainment of happiness of society through labor. Exceptions to principle of equality. Inutility of low efficiencies of conversion. Distribution of leisure. Factors of its utility. Some concrete corollaries of the foregoing principles. Combining democracy with efficiency. Individualistic and socialistic acts. Application of the principle of democracy. Relation of individualism

to consumption and socialism to production. Corollaries thereof. General mode of formulating principles of political engineering. The most comprehensive of appliable sciences. Physical, guided by moral, science a blessing; unguided, a curse to mankind.

Thas already been suggested that to solve the problem of the problem of utility human conduct must be used as a means to that end. If so, what prevailing quality or qualities can be found in it or in its causes which adapts it to subserve such a function? Human conduct is a product of human nature and in human nature, as at present constituted. are to be found two prevailing qualities which, more than all others prevailing there, are capable of being adapted to the end we seek —self-interest and intelligence. I do not mean to assert that these are the two most useful qualities in human nature. I do not mean to assert that they are the two qualities that most prevail. What I do mean to assert is that the more useful qualities do not so prevail, and that the more prevailing

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qualities are not so useful. Public interest, for example, is more useful than self-interest, but it does not so prevail; and habit is more prevailing than intelligence, but it is not so useful.

It requires little acquaintance with the normal processes of human nature to enable us to perceive why the two qualities we have specified can be adapted to the end of utility. Mark, I do not say, are now adapted. It may be said, in general, that if the conduct of a normal human being is to be successfully directed to a given end, it is requisite, first, that he shall have the desire to accomplish that end, and second, that he shall have the ability to recognize the means which will accomplish it. Self-interest will furnish him with the desire, intelligence will furnish him with the ability, and it is a function of the political engineer to utilize the most prevailing motive, and the most useful faculty of man in the accomplishment of his

designs. Thus we may formulate a particularly useful and fundamental principle of utility as follows:

Self-interest should be used to impel, and intelligence to direct, human conduct to the end of utility.

Let us call this the adaptive principle because the successful adaptation of the means of mankind to their end is, in large measure, dependent upon adherence to it. The adaptive principle is somewhat indefinite, vet it is sufficient to exhibit the relation to utility of the main theories of control of the conduct of society which have been thus far distinguished. These theories may be classified under three heads: (1) anarchy, (2) oligarchy, (3) democracy. All three of these words in common usage have various meanings, and to some of them the following remarks will not apply. The meanings here used, however, conform with much usage and are employed because they are use-

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ful in making plain the fundamental theories of social control.

Anarchy requires that there shall be no artificial control of human conduct—that all men shall be permitted to do just as they please without any meddling by laws or governments-that the limitations imposed by nature shall constitute the only fetters upon the freedom of mankind. The reasoning which lends support to this theory is very simple. As each man knows best what will give him pleasure, we have only to let men alone and they will get as much pleasure as it is possible for them to get. Laws, by restricting the acts of men, diminish the freedom with which they can choose the conduct which pleases them, and thus only serve to diminish happiness. This doctrine dimly recognizes the authority of the adaptive principle. It gets as far as the recognition of self-interest as a prevailing motive. But there it stops. It recognizes neither that to-

tality of happiness is the end to be sought, nor the necessity for intelligence in seeking it, and it confuses legal with real liberty.

Oligarchy requires that human conduct shall be subject to some artificial control, but that the control shall be administered by a restricted and irresponsible class of society, and it reasons to its conclusion with the same simplicity as does anarchy. It contemplates a government by the best and wisest people, by an aristocracy, whose wealth and opportunity for education shall be such that they can acquire wisdom superior to anything which the mass of mankind can hope to attain. By their freedom from the consequences of their own enactments, such rulers can take a judicial and far seeing attitude toward all policies of state, and maintain such policies in consistent operation through all fluctuations of popular opinion and excitement.

It is obvious that this doctrine also recog-

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nizes dimly the authority of the adaptive principle. It gets as far as the recognition of intelligence as a means of direction, and the happiness of society as an end is vaguely and abstractly recognized. But there it stops. Even among the most enlightened advocates of aristocracy the prevailing self-interest in human nature is ignored. It is predictable from theory, and confirmed from experience, that oligarchical control of conduct, however intelligent (and it is generally unintelligent), seeks, not the happiness of society, but the happiness of the ruling class; and hence its failure to attain the end of utility, a failure almost as complete as that of anarchy.

Democracy as a theory of control of human conduct is of such interest that we shall give it more attention than the two other theories. The general form of what may be called the democratic principle is as follows:

Conduct affecting the happiness of any aggregate of human beings as a whole, should be directed by that aggregate.

Thus democracy requires that power shall be vested in those whose interest is affected by its exercise. No other generally applicable means of making power tend to steadily serve the interests of utility has thus far been discovered.

The doctrine of democracy obviously recognizes the validity of the first half of the adaptive principle, its reasoning being very similar to that of anarchy, except that it does not, like anarchy, ignore social happiness in the interest of individual happiness.

It seems quite clear, for instance, that the only reason why the conduct of a people should be directed by that people is that they are more likely to seek their own common happiness than any other generally available being or aggregate of beings. But if this be so, then the collective direction or control

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of a people should not extend to all the acts of the individuals composing it, but only to such a fraction of them as affect the happiness of the people as a whole; and this fraction will be different for every different stage in the organization of society, being zero in a perfectly disorganized stage wherein the mutual independence of individuals is complete, and being unity in a perfectly organized stage wherein the mutual interdependence of individuals is complete. These extremes, however, exist only in theory; the members of no community ever have been, are now, or probably ever will be, either completely independent or completely interdependent, and hence the principle of democracy requires that only a portion of the acts of an individual shall be controlled by collective decree, how large a portion depending upon the degree of interdependence existing.

But the same reasoning here applied to

a people is obviously applicable to any other aggregate of the human race, from society as a whole through nation, state, city, household, down to the individual; the only classes of acts which such an aggregate is entitled to control are such as affect its own happiness considered as an aggregate. Classes of acts which affect a greater aggregate should be subject to the control of that aggregate, those which affect a lesser one exclusively should be left to the control of that lesser one. Abraham Lincoln included this principle of graded control of human conduct in his definition of democracy. Thus he says:

"I think a definition of popular sovereignty (democracy) in the abstract would be about this—that each man shall do precisely as he pleases with himself, and with all those things which exclusively concern him. Applied in government, this principle would be that a general government do all those things which pertain to it, and all the local governments shall do precisely as they please

in respect to those matters which exclusively concern them."

And again:

"This relative matter of national power and State rights, as a principle, is no other than the principle of generality and locality. Whatever concerns the whole should be confided to the whole—to the General Government; while whatever concerns only the State should be left exclusively to the State. This is all there is of original principle about it."

The practice which prevails in the United States, in a measure at least, of divided authority, the nation, the state, the county, the city, the ward, the family, and the individual, each being supreme in its own sphere, is but an application of this simple deduction from the adaptive principle. It is a groping attempt, and not always a successful attempt, to make the practice of democracy approximate to the requirements of its theory.

So much at present for the theory of democracy pure and simple. It is but a spe-

cial application of the first clause of the adaptive principle, requiring that self-interest shall be used to impel human conduct to the end of utility. The second clause of that principle, however, requires that intelligence should be used to direct human conduct to that end, and one of the first difficulties encountered in attempting to apply the theory of democracy is the necessity of discriminating between intelligent and unintelligent direction of the affairs of the community. To discriminate between those who shall, and those who shall not participate in those affairs, on grounds of intelligence, requires some departure from the simple rule of democracy, and the question of how best to effect a compromise between the two requirements of the adaptive principle is one of great practical difficulty. Thus in selecting those who are to direct the policies of state all actual democracies, so far as we have them, are found to make a distinction be-

tween the intelligent and the unintelligent. Though hampered by tradition they are, in a measure, successful in this attempt. Insane persons because of defective intelligence, and children because of immature intelligence, are excluded from a voice in the direction of state affairs. This practice is obviously a recognition of the validity of the second requirement of the adaptive principle. It is an attempt to direct the conduct of society by the intelligence of society, but in order not to abandon the first requirement of the principle, the directing intelligence must not be a restricted but a prevailing degree of intelligence.

Utility, however, cannot contemplate the oppression of those of immature and defective intelligence, yet to give them a voice in the affairs of society could benefit neither themselves nor the community. Hence to them the adaptive principle is applied in a different manner. Their interests are left

to those presumably most desirous of seeking their happiness, that is in general, to the mature and normal members of their families and through these members their interests are preserved. At least that is the present practice. They are thus represented indirectly if not directly in the voting body.

The existence in any community of a class, intelligent or unintelligent, which has no voice directly or indirectly in affairs of state, is a condition favorable to oppression and hence unfavorable to utility.

The principle thus characterized may be incorporated with the principles already examined into a single rule or principle of compromise, thus:

Conduct affecting the happiness of intelligent beings should be directed by those whose happiness is affected, and of unintelligent beings by those among the intelligent whose happiness is most closely related to theirs.

Let us next confine our attention for a

while exclusively to the second requirement of the adaptive principle, the requirement that intelligence shall direct the conduct of society.

Permit me to begin this part of the exposition by an analogy indicating the relation between the principles of political technology about to be expounded and the principles employed in a familiar technical process.

The metallurgical engineer engaged in the iron industry employs as his raw material iron ore, the iron in which is worth say \$10.00 per ton. Subjecting it to the action of the blast furnace, he makes a preliminary separation of the undesirable portions of that material—the oxygen and gangue rock with which the iron is combined and contaminated. The result is pig iron, worth about \$15.00 per ton. The pig iron is treated in the Bessemer converter or in the open hearth furnace and then made into steel

rails worth say \$28.00 per ton, or tool steel worth hundreds of dollars per ton, or watch spring steel worth thousands of dollars per ton. Thus by applying suitable processes of metallurgical engineering, something worth only \$10.00 has been converted into something worth several thousands of dollars.

The aim and the process of the political engineer and the metallurgical engineer are analogous. The raw material with which the political engineer starts, however, is human life. The intrinsically undesirable portions; viz., harmful and useless acts, and acts of pleasureless production and negative consumption he proposes to eliminate as far as he can. The intrinsically desirable product which remains, the pleasurable or positive fraction of life, is then refined and uplifted till it produces ten times, a hundred times, or thousands of times the amount of happiness per day or per year as the raw material which is to-day so wofully wasted.

In speaking thus of human life as something to be transmuted into happiness with a degree of success, increasing with the progress of political engineering, we are really introducing into our exposition a concept very familiar in metallurgical and all other branches of engineering—the concept of efficiency. In engineering science there are many different kinds of efficiency, each branch of engineering dealing with efficiencies peculiar to itself. Thus steam engineering is interested in the heat efficiency of steam engines, this being the ratio between the mechanical energy yielded by a given amount of heat energy supplied to the engine. and the theoretical maximum which might be yielded. Thus chemical engineering is interested in numberless gravimetric efficiencies, these being the ratio of the weight of a given product produced in a technical reaction to the weight theoretically calculable from the weights of the factors. The con-

cept of efficiency, wherever it is found is, indeed, the concept of a ratio or relation between two magnitudes which can be altered by the application of intelligence, a ratio in general increasing when means are better adapted to ends, and decreasing when they are worse adapted.

As a better grasp upon political engineering can be had by the introduction of this concept I am going to presume upon your good nature by directing your attention to a more technical aspect of our subject than any heretofore encountered, and shall begin by defining the principal kinds of efficiency in which political engineering is interested. This will involve the definition of a few other subsidiary terms.

By product, I shall mean any result of productive acts directly or indirectly utilizable in consumption, whether consisting of material things like wealth, or immaterial things like education. If immediately utili-

zable in consumption (or practically so) like prepared food, it may be called consumptive product, if indirectly utilizable like fertilizer or growing crops it may be called intermediate product, but the context should usually indicate what class of product is referred to, without further particularization.

By the amount of production involved in a given product, I shall mean its labor cost as measured by the pain or trouble of producing it under certain fixed conditions, called standard conditions; and I shall measure amount of product by the amount of production involved in producing it. The standard conditions referred to are conditions, first, of human repugnance to labor, and second, of the extrinsic difficulty in production involved at a given stage of the productive arts. They may be fixed artificially, being merely a convenient level to which to refer varying labor costs of production, just as sea level is fixed artificially in geodetic sur-

veying as a convenient level to which to refer varying vertical distances.

By the efficiency of production I shall mean the ratio of a given amount of product to its labor cost. Whenever we have made it easier or less painful to accomplish a given productive task, either by diminishing the producer's repugnance to the task, or by facilitating, mechanically or otherwise, its accomplishment, we have increased the efficiency of production. In short, to increase the efficiency of production means, in untechnical language, to make production easier or less troublesome or painful.

By productive rate I shall mean the ratio of a given amount of product to the time taken to produce it; so that productive rate is the same thing as productive efficiency with the factor of pain intensity ignored, that of duration alone being considered. By consumptive rate I shall mean the ratio of a given amount of product consumed to the

time taken to consume it. Thus, for example, assuming the money equivalent of consumptive product to be an accurate measure of it, the consumption of ten dollars' worth per day would represent a consumptive rate twice as high as the consumption of five dollars' worth per day.

By the efficiency of consumption I shall mean the ratio of the amount of happiness produced by consumption to the consumptive rate required to produce it. Thus if the consumption of ten dollars' worth of product per day produces an amount of happiness in one person, or under one set of circumstances, equal to that produced in another person, or under another set of circumstances, by the consumption of only five dollars' worth per day, the consumptive efficiency in the second case is twice that in the first.

As increasing the efficiency of production means making products easier to secure by

means of labor, so increasing the efficiency of consumption means making happiness easier to secure by means of products. Productive and consumptive efficiency are coessential in the process of successfully generating happiness through labor, or effort, and this is the only successful way of generating it in this world. Hence in the theory and practice of political engineering the latter kind of efficiency is not less important than the former. In the theory and practice of political economy on the other hand, consumptive efficiency is of no importance at all, and productive efficiency is of importance only because of its relation to productive rate and thus to commercial efficiency. By commercial efficiency I mean the kind of efficiency referred to in the current discussion of economic topics, viz., the ratio of an amount of wealth (or service) to the money cost (instead of the labor cost) of securing it—a concept having a mixed relation to

utility, dangerously misleading to those who do not know just what the relation is. The decrease of such a ratio is as likely to be useful as its increase, because there are so many ways of making wealth cheap which make happiness dear. It is folly to attempt to use the concept of commercial efficiency in guiding the economic policy of nations, as is the common practice to-day.

In the last lecture we proceeded far enough in our analysis to show that the way to convert human life into a source of happiness was, in the first place, to eliminate as far as possible useless and harmful acts, and, in the second place, to increase the intensity and duration of positive consumption and pleasurable production, and decrease the intensity and duration of negative consumption and pleasureless production in the average member of society. Suppose we attack this problem now from the point of view of efficiency. It can be shown that by the

general practice of increasing the efficiencies of production and consumption and simultaneously adjusting the indicative ratio to the degree of increase attained, the problem can be successfully attacked. Let us begin then by inquiring how these efficiencies may be increased.

The factors of productive efficiency may, for our purpose, be regarded as of two classes—the sentient factor, or the human beings who engage in production, and the non-sentient factor, including all other agencies of production, such as capital, and the forces of nature, with which the sentient factor coöperates to accomplish his productive ends. To increase productive efficiency we must bring about some change in one or both of these factors—we must alter either internal or external conditions of production.

Discussing the former case first, what qualities in a human being determine his efficiency as a producer? They may be in-

cluded under the terms industry and skill. By industry I mean the conduct resulting from a lack of aversion to labor. It is clear that in the degree in which a person possesses such lack, the pain involved in a given amount of production will be diminished. Moreover less time will be wasted or devoted to useless frittering. By skill, I mean quickness, accuracy, and intelligence in labor, and it is clear that in the degree in which a man possesses it, the time involved in a given amount of production will be diminished. Moreover, the exercise of skill lends interest to a task, and thus the pain element will be diminished. One way to increase productive efficiency then is to increase the industry and skill of producers.

That internal variable of productive efficiency which is increased by diminishing men's aversion to labor, or increasing their pleasure in it, I shall call the efficiency of productive conversion, because it measures

the facility of converting the productive portion of a person's life into a means of happiness to him.

Turning now to the external conditions of production, efficiency may be increased by intelligently adjusting the producer to his task, not giving a barber's job to a bricklayer, or a bricklayer's job to a barber; not giving a tailor's job to a doctor, or a doctor's job to a tailor; not giving a lawyer's job to a political engineer, or a political engineer's job to a lawyer—a mistake, by the way, that we habitually make to-day.

It may also be increased by enlisting the producer's interest in his work through external means, either by making it, so far as practicable, in the nature of a game to be played, or by making the pecuniary reward of labor proportional to the amount of production accomplished, or by making the duration of labor inversely proportional to the rate of production. An example of the first

method is that exemplified recently in digging the Panama Canal, when the steam shovel men who dug the greatest quantities of earth were acclaimed as victors in the digging contest. This made steam shoveling resemble bowling or quoit throwing; the men became interested in seeing how much they could dig, and the result was a great increase of the daily amount of earth dug, with an actual decrease in the labor cost of digging it.

Examples of the second method are afforded by piece work payment, the pecuniary reward being proportional to the amount done. This usually has the same effect as the game method of stimulating interest, and a similar result can be obtained by rendering the duration of production inversely proportional to its rate, or by stimulating interest in labor in other ways.

Another, and a very important method of increasing productive efficiency is by intro-

ducing labor-saving machinery into the productive arts, that is, by stimulating the operation of the law of increasing returns. Improved machinery not only can save men the weariness that comes from undue exertion, but it can enormously increase their rate of production. It is unnecessary to cite examples of this. Improvements in the organization of industry in general which accompany production by machinery have, of course, the same effect as improvements in mechanical methods, and may be classed with them as agencies of efficient production, and the same may be said of the intelligent selection of the most favorable opportunities for coöperating with nature.

So much for the general methods of increasing productive efficiency. They are not unfamiliar, being recognized as of interest by the commercial economist because productive efficiency has a clearly marked relation to commercial efficiency. But we

shall now turn to a subject never recognized by the commercialist and inquire how, in general, the efficiency of consumption may be increased.

Consumptive, like productive, efficiency is, in the first place, a matter of individual qualities. There is an internal as well as an external variable involved in it. As consumptive efficiency is directly proportional to the ease of producing happiness by the consumption of wealth, or other products, it is clear that, other things being equal, the simpler and more varied the tastes, and the fewer and less urgent the needs, of an individual, the higher will be his efficiency of consumption. Hence one requisite and a very vital one, in increasing such efficiency is to increase, by education and otherwise, simplicity, variety, and interest in the tastes of men, and to make them so far as possible independent of needs.

One important feature of such education

should be the nullification, so far as possible, of the law of increasing needs, i. e., of the tendency to develop luxurious tastes with the means of gratifying them, and of converting such tastes into needs. The popular expression of this law is embodied in the aphorism: the more a person has the more he wants. If the tendency thus characterized is not checked the efficiency of consumption can never attain a high value, and any benefit which might arise from a high productive efficiency will be nullified by a low consumptive efficiency, since, with the development of tastes for luxuries of great labor cost a high rate of consumption will yield no more happiness than a low one would before the development of such tastes.

That internal variable of consumptive efficiency which is increased by simplifying and rendering more interesting the tastes and eliminating the needs of men—the internal factor of consumptive efficiency—I

shall call the efficiency of consumptive conversion, because it measures the facility of converting the consumptive portion of a person's life into a means of happiness to him.

There are thus two kinds of efficiency of conversion—productive and consumptive, both being measures of the facility of converting life directly into happiness.

To render plain the significance of these kinds of efficiency it should be observed that man as an agent of utility contributes to the end thereof in two different capacities. In his primary capacity he acts as a direct happiness generator, his capacity for pleasure and pain being the vital factor involved. In his secondary capacity he acts, in common with many inanimate things, as an indirect agent of happiness, his capacity to adapt means to ends being the vital factor involved. Efficiencies of conversion, while affecting his utility in both capacities, are

of most direct and vital importance in his primary capacity.

Of even more interest than the law of increasing needs, in a discussion of consumptive efficiency, is what I have called the law of diminishing returns of happiness, one consequence of which is the familiar law of diminishing utility, referred to in works on economics. This is a law of human nature, apparently universal, though not operating in an identical manner in all persons. It may be expressed thus: Equal increments of consumptive rate produce progressively diminishing increments of happiness; or, as the consumptive rate increases, the happiness resulting therefrom increases in progressively diminishing proportion.

For example, consider a man living at the lowest rate of consumption consistent with the maintenance of existence. To make the case specific, suppose he is consuming at the rate of twenty-five cents a day. Suppose

now his rate of consumption to be progressively increased by equal increments, say of twenty-five cents a day. Then, according to the law of diminishing returns of happiness, the first increment of twenty-five cents a day would produce a greater increase of happiness (decrease of unhappiness) than the second, the second would have a greater effect than the third, the third than the fourth, and so on. Soon negative would give place to positive consumption and finally the time would come, say when his consumptive rate had risen to ten or twelve dollars a day, when an increase of twentyfive cents in the rate would make no appreciable difference—the augmentation of happiness resulting would be quite insignificant. The practical consequences of this law of human needs and tastes is of decided importance in the application of the theory of utility. Let us see what can be inferred from it.

Note first that in consuming at rates close to the lowest rate consistent with sustaining life, the output of a human being is not one of happiness but of unhappiness. Hence each person in a community who is consuming at such rates is, in his primary capacity as a happiness generator, a debit factor and diminishes by just so much the total output of happiness in that community. If there are enough such persons they may wipe out the credit balance of the community, and render the total output thereof negative, that is, yielding more unhappiness than happiness. In that case the community, in its primary capacity, becomes worse than useless-it becomes harmful and in the interest of totality should cease to exist. A contented frog would, as an immediate generator of happiness, be more useful to the universe. This indeed is, in all probability, the condition of countries like India where poverty and disease is very prevalent. If

the whole population of India were wiped out by some cataclysm to-morrow, the world's daily output of happiness would doubtless shoot upward like a rocket.

Evidently then consumption at very low levels is not useful. How about very high levels? Consumption at very high levels is inefficient consumption, because though the rate of happiness production is high, the rate of consumption is proportionately higher, and the labor cost of sustaining such a high rate of consumption is so great that the resulting happiness does not pay—in happiness; the game is not worth the candle.

But if a very low rate and a very high rate of consumption are both undesirable it is obvious that the best rate is to be found among moderate ones. Without going elaborately into the discussion here, it will suffice to say that a medium rate of consumption is best among the members of a community. Indeed any community, which

produces what it consumes, that departs far from such a condition is bound to produce more misery than happiness. While we have not data for assigning any exact rate as the proper one for any known community we can probably assign approximate limits between which it will occur.

The law of diminishing returns of happiness then permits us to lay down the following rule of political engineering:

There should be no very high and no very low rate of consumption among the members of a community. The rate should be moderate, and hence approximately equal among all members.

This may be called the rule or principle of consumptive equality.

Thus by the consideration of a universal law of human nature, we have arrived at a very interesting rule relating to the distribution of wealth, or products—that is of consumptive rate, for a wealthy man is simply

one who can consume at a high rate, and a poor man is one who must consume at a low rate.

Of course in communities the productive rates of which are too low, a low average rate of consumption is unavoidable. Most countries, however, where the application of science is well developed, are in all probability not to be classed among such communities: but it is nevertheless obvious that an excessive density of population, stimulating as it does the well known law of diminishing returns of labor, can nullify the effect of science in stimulating the law of increasing returns, and thus cause general poverty. The method of preventing such excessive density is a subject which I cannot stop to discuss here, except to say that an adequate rate of consumption by its effect in moderating the birth rate, is itself a method of prevention, probably in most cases sufficient.

Although it would require omniscience to

tell exactly what it is, there is in any community a certain distribution of consumptive rate, which, other things being equal, would yield more happiness than any other distribution. Taking this ideal distribution as a standard we may express the concept of distribution in terms of efficiency—the efficiency of distribution of any given distribution of consumptive rate being the ratio of the happiness yielded thereby to the happiness which would be yielded by an ideal distribution.

Now we have seen that, other factors of utility remaining the same, the efficiency of distribution will be higher when the rate of consumption among the members of a community is equal than when it is not. Before qualifying this rule, let us illustrate the whole problem of the use of wealth in the production of happiness by an analogy. In order to avoid technical language we shall regard wealth, in this discussion, as the sym-

bol or equivalent of rate of consumption of consumptive product in general. As a practical matter, a person's opportunity for consumption of products in general is proportional to his opportunity for consumption of wealth.

A farmer who wishes to fertilize a field on which to raise a large crop of grain must observe two rules of cultivation which embody the necessary and sufficient conditions of success. First, he must use an adequate amount of fertilizer. Second. he must spread it with approximate evenness over the field. If the amount of fertilizer he applies is too small, or if, being sufficient, it is piled in heaps in a few spots and scattered thinly over the rest of the field, he will, in either case, fail in his purpose of raising a large grain crop. Now wealth bears a relation to human happiness analogous to the relation which fertilizer bears to a grain crop; wealth is a means to the cultivation

of happiness as fertilizer is a means to the cultivation of grain, and to raise a large crop of happiness by the use of wealth, two analogous rules of cultivation must be followed. First, enough must be applied to the community to raise the average man well above the poverty level, and second, assuming enough to be applied, it must be spread out, or apportioned among men with approximate evenness, and not piled in great accumulations in a few hands, and applied thinly and scantily to the mass of the people.

In other words, to solve the problem of successfully applying wealth to the cultivation of happiness, high efficiency in both production and distribution is essential. Efficient production alone will not solve the problem: neither will efficient distribution alone. Each supplies a necessary condition to the solution of the problem, but it takes both to supply the sufficient conditions.

Like the principle of democracy the princi-

ple of equality is a general, and not a universal rule, to be followed so far, and only so far, as the theory of utility requires. Equality in the distribution of wealth is not an end, but a means, nor is it universally a means, and when it ceases to be a means it ceases to be useful. Here again the same principle holds in employing wealth as a cultivator of happiness that holds in employing fertilizer as a cultivator of grain.

Equality of distribution is the best distribution only where each unit in which happiness is to be generated, i. e., each human being, is like every other unit. This is never the case in practice. The rate of consumption which will contribute most to the greatest total yield of happiness is different in different persons, and in the degree in which that difference can be recognized, there should be a corresponding departure from equality. The direction of that departure, however, should be usually toward increasing moder-

ately the consumptive rate among persons of high efficiency of consumptive conversion, rather than increasing immoderately the rate of persons of low efficiency, as is the general practice to-day. I will illustrate what I mean by again resorting to the analogy of crop cultivation.

If a farmer has among the land he cultivates certain areas so barren and unresponsive to cultivation that they require an inordinate amount of fertilizer to enable them to grow a crop, it is very poor husbandry for him to attempt to cultivate them at all. They are not worth cultivating, because the same amount of fertilizer required to make them yield a crop would, if applied to average ground, result in a much larger yield. The low efficiency of conversion of such areas makes it uneconomic to use them as crop producers.

In distributing wealth the same rule should be followed that the farmer follows in dis-

tributing fertilizer. Put it where it will do the most good—where it will yield the largest crop of happiness. Do not waste on some barren devotee of luxury a quantity of wealth which, distributed among ten average men, would yield ten times the output of happiness. Wealth thus wasted is not worth producing. It costs more pain to produce than it yields in happiness when consumed, so that the total result of its production and consumption is a deficit. Persons of low efficiency of conversion are poor happiness producers, and conditions, such as the concentration of wealth, which tend to develop them, should be discouraged as much as possible; and if through unwise distribution of the social product or otherwise such inefficient persons have been developed, their efficiency of conversion should be increased by requiring of them habits of life adapted to simplify their tastes and diminish their needs.

These considerations indicate that while moderate departures from equality in the distribution of wealth may be useful, great departures are not, but on the contrary are very sure to be harmful. Wealth costs too much labor to produce for society to permit it to be consumed inefficiently, and very high rates of consumption are always inefficient.

Having considered the question of the distribution of consumptive rate, let us next consider the question of the distribution of the duration of consumption—what is commonly called the distribution of leisure. Should leisure be equally distributed among the members of a community or unequally, and if unequally, what should be the law of inequality? Like other questions in political engineering this one does not admit of any universal answer but there are certain considerations which throw light on the question, and in seeking for our object, it

is better to attend to them than to ignore them.

In the first place it is evident that if we secure an approximately equal distribution of average consumptive rate, and at the same time a very unequal distribution of the consumptive fraction of life, the actual rate during said fraction will usually be too high or too low for satisfactory efficiency, according as the fraction is too low or too high. This indicates the need of equal distribution of leisure, an indication which may be strengthened by a more particular examination.

Consider for example two average individuals, A and B, isolated from the rest of the world so that they are compelled to produce all that they consume. Suppose that A does all the production, consuming only during such time as is necessary to keep strong and healthy and that B does all the rest of the consuming, but no producing.

The question is, would this be the most useful distribution of leisure suggestible? Let us see.

The law of diminishing returns of happiness rests in part on what may be called the law of fatigue, viz., that the repetition of the same nerve stimulus, whether normally pleasurable or not, tends to become irksome —that the generation of happiness by consumption or the prevention of unhappiness in production, generally requires change or variety of occupation. This law operates in such a manner that the irksomeness of production tends to increase and the pleasure of consumption tends to decrease, with uninterrupted duration; at least beyond a certain point. It is also true that an interval of rest and recreation if not too protracted diminishes the average irksomeness of labor; and in a less measure perhaps, that an interval of work, if not too protracted, increases the average intensity of consump-

tion. Too much labor and too much loafing each tend to demoralization. Moreover, a similar law affects the productive rate a man cannot produce twelve times as much in twelve hours as he can produce in one hour.

Suppose for example an average man, producing what he consumes, to work sixteen hours a day and consume sixteen hours the next day. Would this distribution of his time produce more happiness than if he produced eight hours and consumed eight hours each day? In the long run the duration of production and consumption would be the same in both cases, but the chances are that the happiness produced in the long run would be greater in the second case than in the first. The reasons for this, pertinent to our argument, are three in number: First, the average intensity or irksomeness of labor would be greater in the first case than in the second. Second, the average productive

rate would be less, and hence the average consumptive rate would have to be less. Third, the average efficiency of consumption, even at the same rate, would probably be less. Now these reasons hold as well when the production and consumption is distributed between two persons, such as A and B, as when they are confined to one. When distributed between two, however—at least one additional reason, emphasizing the three given, may be cited. The irksomeness of labor is very much increased when there is no anticipation of relief. When the worker has little or nothing to look forward to in the way of recreation his efficiency of production diminishes. On the other hand, the anticipation of eight hours labor may in some degree diminish the pleasure otherwise taken in consumption, but its effect would be less than in the first instance. The outlook might be somewhat clouded, but it would not seem very serious to the average

man, particularly if he were accustomed to it.

These considerations appear to indicate that as between a distribution of production and consumption such that A produces sixteen hours and B consumes sixteen hours, and one in which both A and B produce and consume eight hours apiece, the latter is the more useful. Moreover, if we should compare any other unequal distribution of productive and consumptive duration with an equal distribution, the latter would still be the more useful, though the difference in utility would not be so marked in the case of less degrees of inequality; and the same principle would hold between three or more average persons as between two. Hence we may lay it down as a general rule that:

The distribution of the relative duration of production and consumption between persons of equal productive and consumptive efficiencies should be equal.

Thus there seem good reasons for believing that not only should the distribution of wealth be approximately equal among men, but that the distribution of the leisure to enjoy wealth should likewise be approximately equal. Both rules for the use of wealth in the cultivation of happiness follow the analogy of the use of fertilizer in the cultivation of grain.

It should be noted, however, that our rule holds good only for persons of equal productive and consumptive efficiencies, and, as already remarked, we find in practice considerable variation in this respect. These variations require various departures from the rule of equality. The general tendency of these departures is fairly obvious, and I shall merely state three of the most general rules, as they apply to individuals, without going into further particulars. Thus, other things being equal:

1st. The greater the intensity of produc-

tion, the less should be the duration of production, and vice versa.

2nd. The greater the rate of production the greater should be the duration of production, and vice versa.

3rd. The greater the efficiency of consumption the greater should be the duration of consumption, and vice versa.

These rules require considerable care in application, being subject to various exceptions which I have not time to discuss. Nevertheless, I shall digress long enough to point out one interesting aspect of their application.

Any individual or aggregate of individuals whose average productive rate is just sufficient to support his or its average consumptive rate may be called self-sufficient. From the foregoing considerations it follows that:

Children, old persons, and defectives should be less than self-sufficient. There-

fore, as society as a whole must be self-sufficient, other persons should be more than selfsufficient.

Referring to society as a whole, instead of to individuals, and to average, instead of relative, intensities, rates, and efficiencies, the foregoing rules assume the following form:

Other things being equal:

1st. The greater the intensity of production the less should be the duration of production, and vice versa.

2nd. The greater the rate of production the less should be the duration of production, and vice versa.

3rd. The greater the efficiency of consumption the greater should be the duration of consumption, and vice versa.

Incorporating these three rules into one, we may say that, other things being equal:

The average indicative ratio of society should increase as the efficiencies of production and consumption increase, and should

decrease as they decrease. The question of just how much it should increase or decrease with given variations in these efficiencies depends upon the precise law of diminution followed by the law of diminishing returns of happiness, and upon the average labor cost of production. I have elsewhere solved this problem for a hypothetical case, but it is too intricate for discussion here.

It will be noticed that the greater the relative rate of an individual's production, the greater should be his duration of production; whereas the greater the average rate of society's production the less should be its duration of production. This apparent paradox follows from the fact that the happiness of society is paramount to that of any individual. Individuals should serve society, whereas society should only serve itself. Hence, other things being equal, the greater an individual's productive efficiency the more his life should be

devoted to production; it being no less true that, other things being equal, the greater his consumptive efficiency the more his life should be devoted to consumption. By such a policy each unit of society devotes itself to that part of the process of happiness production which it is best adapted to, and society as a whole is thereby a gainer, even though the more productive portion of society is, in some degree, sacrificed to the good of the whole.

It should be pointed out, however, that any particular generation is not society, and it may be as useful to sacrifice a particular generation to the welfare of society as a particular individual. This fact has a variety of consequences too particular for present discussion. It will be touched upon in the next lecture.

Having reduced the second requirement of the adaptive principle to more concrete rules, let us next see if we can apply the first

requirement to them. In other words, let us, if possible, formulate the principles whereby democracy may be combined with efficiency.

In order to accomplish this I shall redivide useful acts into two classes:

(1) Acts directed to the interests of the individual performing them, and (2) Acts directed to the interests of some larger aggregate of society. The first class of acts may be called individualistic, the second class socialistic.

Recalling in this connection our former exposition of democracy, and referring to the intelligent members of society, it follows as a corollary from the principle of democracy that:

Individualistic acts should be directed by the individuals who perform them, and socialistic acts by the aggregate of society affected.

Now attention has already been directed 183

to the truism that the total amount of happiness experienced by society is the sum of the amounts experienced by the individuals composing it. That is, social happiness requires individual happiness. The question is, however, does the efficient production of social happiness require acts of both socialism and individualism? This question may best be answered by considering the condition of a community in which these classes of acts are successively assumed absent.

Assume first a community in which none but individualistic acts are performed, no one considering the common interests of his fellow beings. Such a practice would preclude all coöperation among individuals and hence all the happiness resulting from cooperation. No argument is needed to prove that a community so constituted would not be efficient in achieving social happiness.

Assume, second, a community in which none but socialistic acts are performed, no

one considering his own interests. In such a society the end would, in large measure, be sacrificed to the means. Each individual in perpetually attempting to serve society would block the efforts of all other individuals to serve him. No one would ever submit to be served by others because he would always be engaged in an ineffectual attempt to serve them. Under these conditions the production of individual happiness would be very meager, and hence social happiness would suffer. It is obvious then that efficient generation of the happiness of society requires acts both of socialism and individualism.

Let us next see if we can discover any relation between these two classes of useful acts, and the two classes into which we originally divided useful acts, viz., consumption and production.

The immediate object of a consumptive act is ultimate—it is an end in itself; if suc-

cessful, such an act accomplishes without intervening acts an augmentation of happiness, or a diminution of unhappiness in some human sensorium. Now the best judge of the adaptation of a means to its end is he who is most familiar with the relation between them. Therefore, as a rule, not however without many exceptions, the best judge of the adaptation of a consumptive act to its end is the individual who experiences its effects. A person usually knows his own tastes and needs better than anyone else knows them, and hence he knows best how to judge and direct consumptive acts designed to effect his own happiness. From this it follows that efficiency in the generation of social happiness requires, in general, individualism in consumption.

The immediate object of a productive act is proximate. It is not an end in itself, but merely a means to an end, and the best judge of the adaptation of such an act to its end

is the person who is most familiar with the art, industry, or occupation with which the act is concerned. In judging of common, universally practiced, productive acts like dressing, or walking, we are about all equally expert, but in more special classes of such acts, such as printing, driving, or cooking, those who practice them most are generally best able to judge of their adaptability to their ends. That is, productive acts are best judged and directed by experts. Hence success in the generation of social happiness does not necessarily require individualism in production. Let us see if any general reasons can be found why it does or does not require socialism.

The ideal efficiency of production would be that furnished by Aladdin's lamp. If we could have everything we wished by merely rubbing a lamp, we should not have to worry much. Rubbing a lamp under such circumstances would be a very agreea-

ble substitute for work. But mark this fact carefully. It is productive, not consumptive, acts that men wish to delegate. They would like an Oriental genii to provide them with a feast, but they would not want him to eat it for them. What they want furnished by some outside agency is the means. They are glad to furnish the end themselves. Increase of happiness or decrease of unhappiness is always welcome, but to produce the means of acquiring them is usually the reverse.

Unfortunately for mankind, Aladdin's lamp exists only in the realm of fiction, but it is the limit which productive efficiency should aim to approach as closely as possible, even though it can never be actually attained. In the old days when individualism prevailed in production, and almost everything needed by the family was made at home, productive efficiency was very far from this limit, and no way of approaching

it was perceptible. But times have changed. It is now well known that in the production of a very great and increasing number of things which men require to satisfy their desires, they are able to coöperate. By cooperation they are able to introduce into production the important expedient known as the division of labor; as a result of this they can secure in a very efficient manner the coöperation of machinery, and in this and other ways, acting collectively, they can increase the average efficiency and rate of production (and hence the potential average rate of consumption) from ten to a hundred fold or perhaps more. Coöperation under these conditions is thus a sort of substitute for Aladdin's lamp—not a satisfactory or perfect substitute, but with the progress of science approaching more and more nearly Aladdin's lamp as a goal.

The most conspicuous examples of efficiency are to be met with in those productive

acts, the object of which is the fabrication or transportation of commodities, a kind of production generally designated as industrial, but in all, or almost all, other varieties of production, such as education, scientific research, insurance, etc., the principle of cooperation can be made to result in continuously increasing efficiency. Efficient cooperative production, however, is production on a large scale; it is production directed to the interests of society, or of some considerable aggregate thereof, that is, it is necessarily socialistic.

From this it follows that efficiency in the generation of social happiness is, in general, promoted by socialism in production.

Combining this with the conclusion reached on page 186, we arrive at the following principle:

In general, individualism should be promoted in consumption, and socialism in production.

Wherever this principle has been put in practice it obviously follows from the principle of democracy that:

Consumptive acts should be directed by the individuals who perform them, and productive acts by the aggregate of society affected.

This corollary emphasizes the distinction between acts which achieve means merely and those which achieve ends. It is worth repeating that all men are willing and glad to avoid acts which achieve mere means, their ultimate interest being in ends, and generally they can avoid them in the greatest degree by leaving the details of their achievement, whenever feasible, to the direction of experts working in the interests of society; society through its accredited agents thus providing the means of happiness for all, and each individual selecting from the means thus provided those which will best serve his own ends.

The application of this principle is clear in the case of all classes of acts thus far distinguished except those of pleasurable or consumptive production. The immediate object of these being both a means and an end, renders their position obscure.

I shall not, however, attempt here a discussion so detailed and technical as that required to discriminate in what degree, pleasurable production should be socialized. It is clear that the principles deduced, so far as they apply to production, apply most generally to pleasureless production.

The degree in which production can be socialized will, of course, depend upon the degree of organization of society—upon the amount of interdependence among the members thereof—and hence, other things being equal, the average efficiency of production and possible average rate and duration of consumption will depend upon the degree of that organization.

In closing the present rather technical and over-condensed lecture it will be well to summarize the method followed in formulating the rules of political engineering in general.

The object of political engineering is to establish concrete rules or principles to guide the conduct of society.

The first step in the attainment of this object is to determine the end or goal of greatest interest to society. This is the function of ethics, and in the first lecture, by a purely ethical discussion, we concluded that said end or goal is the maximum quantity of happiness attainable by society.

Political engineering being founded upon ethics, postulates the dictum of utility thus enunciated in each and every rule or principle which it can justly lay down as a guide to the conduct of society. This dictum is a universal premise of all political reasoning, a premise which alone justifies the use of

the word "should" in any proposition purporting to guide said conduct.

But although the postulate of utility is a universal premise of our science it is not, of course, the only premise. If it were, society would still be without a guide, since this postulate alone is too abstract to apply to concrete policies. As already remarked, to render it concrete is the function of political engineering proper, and this function it performs by furnishing premises drawn from human experience, indicating how, under conditions affectable by human conduct, the end of utility may be achieved.

The present being but a rough sketch of political engineering pretends to supply only a few of the most general and comprehensive premises and principles of that science. It is indeed, little more than illustrative, but will, I hope, serve to indicate how, starting from the bald and abstract statement of utility, it is possible, without introducing

anything in the way of an opinion or sentiment, either of approval or disapproval, to arrive at very definite rules of conduct, simply by following the teachings of experience.

Although all the derivative rules of political engineering are intended as applications of the universal rule of right, they do not share its universality, unless, like the first three principles developed in the second lecture, they are immediate inferences from it. This, however, does not constitute a criticism of the science, but follows from the fallibility of human reason, and cannot be avoided while man remains fallible. In other words, the premises supplied by human experience, like all products of human observation, are subject to possible exceptions. Their conclusions, therefore, will be subject to exceptions, and these exceptions when definitely formulated into conclusions having the dictum of utility as a premise, become themselves sub-

sidiary rules of conduct, limiting the application of the more comprehensive rules. In fact, in any case in which we are able to perceive that a particular application of a proximate rule violates the universal dictum of utility, we must pronounce the proximate rule, inapplicable in that case. This we have illustrated in the case of the rules of democracy, equality, and others. But no rule or exception which does not derive its authority from that universal dictum has the slightest standing as a criterion of political or, for that matter, of personal conduct, and cannot be accepted as a limitation upon the criteria inferred from it.

It is clear that the science of political engineering is the most comprehensive of appliable sciences. Ramifying as it does into every realm of human interest, it includes in its broadest aspect all sciences which are usefully applied, and while we cannot say that the practices of all applied sciences are

tributary to it, we can say that they all ought to be. The precepts of those sciences that are thus tributary become parts of the code of utility, whereas the precepts of those that are not become parts of the code of inutility. However successful the latter may be in directing means to other ends, they will be unsuccessful in directing means to the right end. Indeed, without the guidance furnished by a sound science of political engineering, not only applied economics, but all branches of applied science become dangerous, and the more dangerous the more they are perfected; for the highly efficient means of accomplishment which they place in the hands of men may be used as well to plunge mankind into misery as to raise them to happiness.

Thus it is due to the advancement of engineering sciences that modern man is able to dissipate the resources of nature with such effectiveness and leave his posterity a barren

and exhausted earth to dwell upon. To the same cause is due the power of the race to multiply vastly its present numbers, and to multiply simultaneously the total misery of men by leaving them in want, for misapplied science combines progress with poverty. With modern engineering methods the power of man to destroy life and property is hundreds or thousands of times what it was in the primitive world, and the application of engineering science to the art of war can, if unrestrained, nullify all the benefits arising from application of the same principles to the arts of peace. In fact, science, unguided by morals, can be and must be a curse to mankind, whereas guided by the moral code of utility it can be and must be a blessing of such far reaching effect as to be beyond the imagination of a race which has but glimpsed the first crude and material miracles of a dawning age of reason.

IV.

THE UTILITY OF MAN

Consistency of utilitarianism. Extension of definition of political engineering. Man as of use to the sentient world. Useful beings, non-sentient and sentient. Utility of man in his primary capacity. Concept of a being of maximum efficiency in primary capacity of man. Man inefficient in this capacity. Three causes of his inefficiency. Utility of man in his secondary capacity. Three factors of efficiency in this capacity. Altruism, Will, Intelligence. Intelligence the marked distinction of man. Common sense or science. Evolutionary origin of common sense. Significance of this origin. Evidences of purpose in the organic world. Adaptation. Theological explanation of adaptation. Obscurity of resulting teleology. Teleology of common sense or utility. Proximate end of universe is intelligence cognizant of happiness. Method adopted by nature to evolve it. Significance of man. His intelligence in harmony, his egotism out of harmony, with the object of the universe. Common characteristic of all religions is to abolish egotism and thus secure complete harmony. Duty and function of man in the universe. Two classes of useful beings required for greatest happiness of the universe. First class comparable with man in his primary capacity, but possessing maximum efficiency. Second class, comparable with man in his secondary capacity, but possessing maximum efficiency. This class possesses characteristics ascribed to God. Theo-

logical concept of the relation of man to God. Scientific concept of that relation. First adoptable steps toward the development of a race of gods. Large scale knowledge production essential to large scale happiness production. Policy of race improvement. Accelerative character of such policy. Development of cosmic from terrestrial beings. Justification of these speculations. The religion of utility.

UR application of the theory of utility up to this point, I hope, has been successful in illustrating the consistency of the theory. Utilitarianism is no compound code of morals. It has no arbitrary and interchangeable system of standards which enables it to be all things to all issues. It does not make right and wrong depend upon a "point of view." It does not ask concerning one thing: Is it moral or immoral? only to ask concerning the next thing: Is it expedient or inexpedient? It does not meet one issue with the Christian standard, another with the patriotic standard, another with the standard of business, and still another with

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the standard of conventionality. It judges all things from ribbons to religions, from potatoes to political systems, by the same standard—the standard of utility. It asks concerning everything—What use is it? or, How useful is it compared with some available alternative? and that which cannot justify itself by its usefulness cannot justify itself at all. In conformity with this principle, we have considered in previous lectures such questions as-What is the use of wealth? What is the use of equality? What is the use of democracy? and in the present one we shall ask, and endeavor in some measure to answer, a question more important than any of these, viz., what is the use of man?

To appreciate the significance of this inquiry, we must recall the considerations which led to the formulation of the utilitarian standard as the one of greatest interest to mankind as a whole. What is it that de-

termines the degree of interest of happiness itself? It is its quantity and nothing else. But if this be so, why should we ignore other sentient beings, such as the animals which share the earth with man? If we do ignore them, we make the test of utility depend upon something else than quantity of happiness —we make it depend upon the shape, or size, or degree of intelligence, of the being who experiences the happiness. To recognize such distinctions is as arbitrary as to recognize the other distinctions of intuitionism: and the theory of utility does not recognize In the first lecture, I said we identified utilitarianism with humanitarianism only provisionally, and for convenience of exposition. In testing the utility of man himself, however, we must revise our provisional definitions of right and wrong, of utility and of political engineering. tarianism simply seeks to make the amount of happiness experienced in the universe a

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maximum. It seeks the greatest total quantity of that particular kind of consciousness. It cares not whether the beings which experience happiness are men or other sentients, nor whether they live in N. latitude 42° or S. latitude 64¼°, or indeed whether they inhabit the earth or some satellite of Sirius. Hence, for the present purpose, we must substitute the word sentiency for the word society or its synonyms in all our fundamental definitions, and thus revised, our definition of political engineering (which in this connection might be called cosmic engineering), becomes: The science which treats of the adaptation of the means of sentiency to its end. In other words, the object of all human endeavor ought to be the production of the greatest possible quantity of happiness in the universe, and the more an act, a policy, an event, or an object, tends to produce universal happiness, the more useful it is. Man is no exception to this rule.

The better adapted he is to the generation of happiness in the universe, the more useful he is. The object of the present lecture is to discuss the utility of man—to discover how well adapted he is to the production of universal happiness, and to point out certain courses of conduct which, if followed, will presumably result in increasing his utility.

The useful beings or existences to be found in the universe are of two kinds: The non-sentient and the sentient. Non-sentient beings, like houses, clothes, crops, air, water, or the earth, not being able to feel happiness themselves, are useful only as instruments to produce happiness in other beings. Sentient beings, like horses, cattle, dogs, men and other animals, being able to feel happiness themselves, can be useful in two ways. First, they may be the immediate happiness-yielding mechanisms, the direct sentient agents, in whose sensoria the only ultimately desirable product—happiness—is generated;

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or, second they may, like non-sentient beings, be instruments in the indirect generation of happiness, their own or that of other beings. Man, as a sentient being, then, may be useful in both these capacities. The first mentioned, we have in the preceding lecture denoted his primary capacity for usefulness; the second mentioned, his secondary capacity.

In order to estimate the utility of man in his primary capacity, let us consider the ideal of a primarily useful being—of a mechanism adapted to yield happiness in the highest degree. This may best be done with the aid of an analogy.

The object of a steam boiler is to produce steam. It is a steam producing or yielding mechanism, designed to convert the heat generated by the combustion of coal in its fire box to the production of steam. Its total efficiency is a function of two coördinate efficiencies: (1) The efficiency of adapta-

tion, or the degree in which the actual conditions of combustion, or consumption of coal approximate the ideal conditions, and (2) the efficiency of conversion, or the degree in which the actual conversion of the heat of combustion to the production of steam approximates the ideal conversion. It may be said to have maximum efficiency of conversion when, assuming a given efficiency of adaptation, it converts as much of the heat of combustion to the production of steam as the laws of nature will permit.

Similarly with a happiness-producing or yielding mechanism. Its object is to convert the potentialities of happiness resident in the universe into actual happiness, and its total efficiency is similarly a function of two coördinate efficiencies: (1) The efficiency of adaptation, or the degree in which the actual conditions of adaptation or utilization of the means of life and happiness approximate the ideal conditions; and (2)

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the efficiency of conversion, or the degree in which the actual conversion of the available means of happiness to the end of happiness approximates the ideal conversion; and, as in the case of the steam boiler, it may be said to have maximum efficiency of conversion when, assuming a given efficiency of adaptation, it converts as much of the potentiality of happiness inherent in the universe into actual happiness as the laws of nature will permit.

We cannot assign any meaning to the word "amount" as qualifying a cause or causes in general; but if we assume that the capacity of the universe to cause happiness is proportional to its capacity for change, that is, to its "free" or transformable energy, then we may say that the being which yields a maximum amount of happiness as a result of the expenditure or transformation, of a minimum amount of energy, possesses maximum primary effi-

ciency of conversion. Or, in popular terms, the more easily it yields happiness the more efficient it is.

When compared with the ideal happinessyielding mechanism thus specified, man in his primary capacity is seen to be exceedingly inefficient. His capacity to convert the potentialities of happiness resident in the universe into actual happiness is slight. We have already discussed some of the principal reasons for this and will not go into the matter here further than to make a formal comparison.

The ideal mechanism should be more sensitive to pleasure than it is to pain. Man is more sensitive to pain than he is to pleasure. The ideal mechanism should require a small expenditure of energy in order to produce a large amount of happiness. Man requires a large expenditure of energy in order to produce a small amount of happiness. The ideal mechanism should employ

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any increase in the means of producing happiness in the production of increased happiness. Man employs, or tends to employ, any increase in the means of producing happiness in the production of increased requirements of happiness. In his primary capacity then, man cannot be considered a success. His efficiency of conversion is meager. It is doubtful indeed, when his capacity for pain is considered, whether he is more efficient than the average brute. Let us examine him in his secondary capacity.

The function of a happiness-yielding mechanism, or being, is to feel happiness. The function of all other useful beings, animate or inanimate, is to promote that feeling in said mechanisms by being instrumental in setting in operation the appropriate causes of happiness direct or indirect. This latter is the function of man in his secondary capacity, and may be divided into two sub-functions: (1) To adjust the conditions or

causes of happiness, internal and external, to such happiness-yielding beings as exist, or may in the future exist, in the best manner possible. (2) To seek the development of improved agents for the direct production or generation of happiness—that is, to seek to create happiness-yielding mechanisms of the highest attainable primary efficiency of conversion, to the service of which all expenditures of energy controllable by reason may be diverted.

In the present lecture, all consideration of efficiency of adaptation so far as it relates to the non-sentient environment of sentient beings—to inanimate objects—will be ignored, this subject having received attention in the second and third lectures. We shall here confine our attention to the question of the utility of man, or of sentient beings which may, or at any rate might, be developed from or by man; and it is clear that in his secondary capacity his utility will

chiefly depend upon the degree in which the following three characteristics are developed in him: (1) The desire to produce happiness in the universe—altruism. (2) The power to overcome or repress desires of a contrary tendency—will. (3) The power to recognize and utilize the means which will lead to the desired end—intelligence or intellect. Let us briefly consider them in order.

(1) Altruism is that characteristic of a sentient being which leads it to regard the totality of happiness as of more importance than its distribution, and is to be contrasted with egotism which is that characteristic of a sentient being which leads it to regard the distribution of happiness as of more importance than its totality. The perfect altruist seeks only the happiness of the sentient world. He is entirely indifferent to its distribution. The perfect egotist seeks that distribution of happiness which will give

him the largest possible share. He is entirely indifferent to the total amount experienced by other portions of the sentient world. As the aim of utility is totality and not distribution, the utility of altruism is obvious. (Note the discussion of this subject in the first lecture.)

The prevalence of egotism among animals, including men, is easily explainable. It has doubtless arisen through natural selection. It is evident that among a great number of organisms struggling for survival those who considered the interest of others before their own would not be well fitted to survive. Hence they would not survive, and would not as a rule, acquire the opportunity to transmit their altruistic characteristics to the succeeding generation. Egotists, on the other hand, or those who considered their own interests paramount, would be the ones, who, other things being equal, would have the best chance to survive under

severe competition for the means of existence; and hence it would be the egotists among organisms who would, in a preponderating degree, survive and transmit their characteristics to succeeding generations. In the struggle for existence, the egotist among organisms is better fitted to survive than the altruist. Egotism, therefore, is a natural product of natural selection, and if it were found absent among organisms, it would go far to disprove the Darwinian theory. As it is, its general prevalence is strongly confirmatory of that theory. A still further confirmation is found in the fact that when nature does produce anything but an egotist she deviates only so far from egotism as will be useful to survival. Thus the sustenance and protection of their young on the part of parents are useful means of promoting the survival of the species. Hence œciotism, or love of family, has arisen among certain organisms by natural means, and

among a few gregarious species phyliotism or love of the tribe or association has arisen from the same cause, but nature (as distinguished from man) has no tendency to develop a utilitarian, because the degree of altruism possessed by such a being would not serve her (immediate) end, viz., survival.

(2) Will is that characteristic of a sentient being which enables it to disregard its impulses. Bravery, fortitude, perseverance, are different names for will, exerted under differing conditions. The greatest totality of happiness is the end of utility, and the guide to that end is reason. Man's egotism impels him to disregard the end of utility, his emotions impel him to disregard the guide to that end. Hence, the chief utility of will is in controlling egotistic and emotional or other unreasonable impulses. Without will, adherence to principles which are opposed by impulse is impossible. Therefore, man's capacity to do his duty

under all circumstances is a direct function of his will power. In men who have a gross misunderstanding as to what constitutes their duty, will is a harmful rather than a useful characteristic. In one who deemed it his duty to seek the unhappiness of himself and his fellows (e. g., an ascetic) a weak will would be more useful than a strong one. The impulses of such a being would provide better guides than his conscience. But to those who recognize that it is the duty of all men to seek the happiness of the universe, will is a conspicuously useful virtue, for it enables them to do their duty regardless of impulse.

(3) Intelligence is that faculty of a sentient being which enables it to present to its mind promising expectations, to distinguish which among them are likely to be fulfilled, and to apply the knowledge so secured in adapting means to ends.

The degree of intelligence of a sentient

being depends principally upon the degree of development of two subsidiary faculties—imagination and reason. The function of the one is to reveal possibilities, of the other to estimate probabilities. Imagination presents to the mind that which may be. Reason determines the chances that it will be. Knowledge owes its existence and its progress to these two faculties, and those who have contributed to it most have possessed both these faculties in marked degree. A strong imagination controlled by a strong reason constitute conditions favorable to the development of that most useful of all known instrumentalities—the creative intellect.

The supreme importance and usefulness of intelligence will become apparent if we recall that in order to produce happiness by our acts, we must in some degree be able to foresee their effects. If we are totally unable to foresee these effects, if we have no means of distinguishing expectations which will be

fulfilled from those which will not, it is clear that we shall be unsuccessful in our attempt to direct our acts to the production of happiness or to any other end. In the absence of intelligence, men would be entirely incapable of making their acts a means to any end, including the end of utility, and hence would have no utility whatever in their secondary capacity. They might have all the altruism and all the will in the world, but, without intelligence, they would be of no service to themselves or to others.

Now the most conspicuous characteristic of man, and the most important element of his utility is his great intelligence—great as compared with other animals. In a far greater measure than any other organism, he is able to learn from experience how to distinguish valid from invalid expectations. Some other animals have as much or more altruism, but no other animal can approach him in intelligence. It is his intelligence

which raises him to distinction in the organic world and marks him as a significant product of the universe.

This being the case, it becomes of great interest to inquire more minutely into the nature of intelligence—to discover if possible just what the mental processes are which enable an animal successfully to guide his acts, by distinguishing between his valid and his invalid expectations. Into such an inquiry, however, we cannot enter in the present essay; but shall be obliged to content ourselves with the assurance that the general nature of these processes are known, and that some of them are susceptible of exact expression. The formulation of these processes is the province of logic.

As already noted, the logical method of distinguishing truth from untruth is sometimes called the scientific method. But its most appropriate name is common sense, because it employs only certain common or uni-

versal processes of the human mind in its search for and tests of truth. Among these common processes, mere belief, opinion or conviction of any kind, has no place. Indeed the difference between science and intuitionism usually coincides with the difference between common sense and common opinion. All men apply the processes of logic or common sense to common things—to things which concern their immediate requirements; but science applies them to all things—it is consistent in its common sense, and this is the secret of its success. Science is not characterized by its subject matter, but by its method. Mathematics is but common sense applied to the study of measurable quantity, biology is but common sense applied to the study of life, geology is but common sense applied to the study of the earth, etc. Practically all men will agree that knowledge in every sphere is acquired from experience. It is the province of logic to

show just how it is acquired, independent of any particular sphere.

The profound significance of common sense in the universe is revealed to greatest advantage only when we consider its origin. In the first place, it is one of the most variable faculties to be found in the sentient world. The lowest grade of idiot has practically none. Such acts as he performs are aimless: he is unable to make them the means to any end whatever. He cannot even feed himself. A newly born child is in almost the same condition. But there is a very significant difference between the child, if normal, and the idiot. The child is capable of learning from experience and the idiot is not. The faculty of learning from experience, of acquiring prevision, is a function of the brain, and it is because that organ is defective in the case of the idiot that he is incapable of learning anything.

Now all normal organisms adapt their acts

to certain appropriate ends; but it is only the higher animals which can learn from experience in any appreciable degree. A coral polyp, for example, will extend its tentacles when suitable food is within reach for it to grasp, and will contract them on the near approach of an object likely to injure it. That is, its acts are adapted to the end of perpetuating its life, but it is capable of learning from experience only with great difficulty—if at all. It will continue to oppose the same reaction to the same stimulus. if not to the end of its life, at least for a very long period. Even if it is touched a great number of times without injury, it will contract and shrink from the contact almost if not quite as much after it has experienced contact without injury a thousand times as it did at first. This sort of action is automatic or reflex. A dog, on the other hand, can not only adapt his acts to eating and drinking, to avoiding harm,

to playing, and to all sorts of desired ends, but he can quite readily learn from experience. It does not take him long to learn his name, to distinguish his master, and friends from other persons, to recognize where he lives, and even the limits of his master's property, or to discover the best places to get a good meal. Between the lower and the higher animals there are many intermediate stages of intelligence, and it is difficult if not impossible to draw the line between those animals which cannot learn from experience at all and those which can learn, but only with difficulty. The less developed the means of understanding of an animal the more experience is required to teach it. Indeed, the facility with which it learns from experience is usually the best measure of its intelligence.

But assume that one of the higher, more complex, animals, such as a deer, a bear, or a bird, were as lacking in common sense as a

polyp. Suppose such an animal were as inflexible and incapable of learning from experience, and hence unable to adapt its acts to the varying exigencies of life in the manner which experience teaches is expedient. It is obvious that it would be entirely unable to survive. It is, in fact, because they have not had experience sufficient to give them knowledge of this character that young animals are so helpless and depend upon their parents for existence. In the case of the higher animals, they are able to perform a few instinctive or automatic acts of a selfpreserving nature, but not nearly enough to carry them through life. They only learn how to adapt their acts to their continued perpetuation by experience, and man in this respect is in the same position as other mammals. In other words, among the higher animals which are required to adapt themselves to a complex and variable environment, some considerable degree of common sense

is necessary to survival, and hence natural selection has developed it.

The fact that nature has provided the higher animals with a means of distinguishing valid from invalid expectations gives to the processes of common sense which constitute these means a vast and highly suggestive importance. From the origin of these processes, it is clear that they are connected in some intimate and necessary manner with the nature of things-with the constitution of the universe. As they are the mental processes, and, so far as known, the only mental processes, universally required by nature in all essential acts, and the only ones through which an understanding of her laws or modes of being and of change can be comprehended. they must be a part of the natural order of creation. The laws of contradiction and of the uniformity of nature, which constitute the deductive and inductive postulates of

common sense respectively, apparently express changeless necessities or limitations of the universe. Common sense, in fact, is the means by which the universe is able to comprehend itself. This is why all those sentient products of nature called animals which comprehend the universe at all comprehend it by means of the same processes—processes evolved by nature herself, and the physical mechanism of which in the brain and nervous system of animals has been slowly fashioned through the uniform teachings of universal experience. Let us follow up the clew suggested by this fact. It has an important bearing on the place and utility of man in the universe.

Examining the sum of things accessible to our observation we find that, so far as the inorganic world is concerned, no purpose is apparent. All seems a blind and infinitely complicated assemblage of changes in which a great, though disguised uniformity is to be

observed, but nothing in the nature of design. In the organic world on the other hand, there is to be perceived something resembling a purpose. That purpose, however, appears to be not happiness, but survival. Examination forces upon the beholder the suggestion that nature is striving to adapt organic beings to their environment in such a manner as to insure their survival as a race. I need not refer to examples of the adaptations to be everywhere observed in the organic world. There are myriads of them, and their frequent effectiveness and ingenuity have been the wonder and the admiration of men since they first learned to reflect upon creation. Up to the time of the development of modern science speculators very naturally attributed these adaptations to the workings of a supernatural intelligence and regarded them as indubitable evidences of design in the universe. Science, however, seeking as it does natural causes for all effects,

has sought to explain the adaptations of organic beings by mechanical causes. While it cannot be said that the attempt has been entirely successful, it is generally admitted by those whose knowledge entitles them to an opinion that the hypothesis of a special creation by a supernatural architect is not tenable. The work of Darwin and his followers has been the principal means of leading men to this conclusion.

One of the main difficulties suggested by the old theological teleology of special creation is that the end appears so unworthy of the means. The adaptations observable in organic nature are imperfect and often inadequate. They appear more like results of the protracted and blundering experimentation of some fallible agency than the perfect work of omnipotence. It would seem as if an omniscient and omnipotent being would not do things so faultily. We know that every successful adaptation in nature has in-

volved an indefinitely large number of failures. Why should God take all this trouble to adapt organisms to their environment when by the appropriate fiat he could adapt them perfectly once for all; and what end is he seeking in all this adaptation anyway? It would seem as if an intelligence capable of creating the universe would not occupy itself with such trifling, and it is hard to see what it can all be about.

Science or common sense suggests to us a teleology which is consistent with what we see about us, a teleology clear in one respect and obscure in another. The direct testimony of consciousness clearly reveals to us an end worth striving for, an end of ultimate interest to sentient creation, but not at all clearly whether it is consciously sought, except by man and the higher animals. Nevertheless, in the adaptation of organic beings, and in the evolution of their adaptation, we can perceive obscure evidences of some-

thing comparable to design; but it is not the design of an omniscient being. Rather is it the blind striving of a power groping for happiness by trying everything haphazard till the proper combination is encountered. This must necessarily be a long and painful process—just such a process as evolution reveals to us. And yet it is difficult to see how the process can be entirely haphazard. Were it so the chance of hitting upon the proper combination would seem too small to result in a progress even so slow and painful as that to be observed in nature. The origin of adaptation in the organic world is still very obscure, but the clew afforded by the preceding interpretation of evolution is perhaps worth following up.

It is obvious that if there is in the universe something in the nature of an intent, design or desire to produce universal happiness, a proximate and essential step to that end might be the development of a being or race of be-

ings capable in the first place of happiness, in order that the end to be striven for may be perceived, and capable in the second place of recognizing the relation of cause and effect, in order that it may adapt the means provided by the universe to that end.

Now, Herbert Spencer has suggested that "organic progress consists in a change from the homogeneous to the heterogeneous," and has illustrated his suggestion with a great variety of examples. This kind of change is in fact a common practice of nature and one particularly well adapted to the production of just such a race of beings as is required by the universe if its object is what we assume it to be. By its tendency to increase the complexity of organisms and hence the complexity of their relation to the environment, and by its destruction of those whose concomitant variations fail to supply means of adaptation correspondingly complex, the capacity of organic beings to adapt their

means to their ends is gradually, and through endless struggles and failures, augmented. We have already suggested how this process under terrestrial conditions has resulted in the evolution of the higher animals, and finally of man—the being possessed in the highest degree of common sense, the being whose capacity for prevision, for recognizing the relation of cause and effect, is greater than that of any other known being in the universe. In man, then nature can be said to have arrived at the first critical stage in the achievement of her design for universal happiness. She has developed a being capable of happiness and capable in a high degree of adapting his means to his end. This is what makes man a unique being in the universe. He is sui generis in his ability to adapt his means to his ends. Prior to his development, nature's whole effort was devoted to a proximate end, to adaptation as an essential antecedent to the development

of common sense. But when man has once, through the application of common sense, perceived happiness as the universal end, she may, through him, strive directly for that end, which is ultimate. If we are not entitled to say that nature deliberately attempted to carry out the process here suggested, we may at any rate say, what is almost as significant, that her methods were those which would have been adopted had the attempt been deliberately made by a power adapted to such a task largely through its infinite capacity for varying its efforts.

This concept of the universal striving for happiness throughout creation—a blind striving prior to the advent of man as a thinking being—embodies the teleology of science or utility; and it represents man in his true relation to the universe, as the only terrestrial being thus far developed who is able, if he will, to deliberately adapt the means of the universe to its end.

The idea of an impulse, or blind striving, urging an unthinking universe to an end is, of course, a very vague one. The facts of evolution which suggest it do not justify either clear statement or confident assertion. The teleology of utility, so far as it relates to the unthinking, though perhaps not unfeeling, portion of the universe, far from sharing the dogmatic finality of theological teleology, is little more than a query. It is only an obscure clew. But remember that many, if not most, of the wide generalizations of science have started as obscure clews. A hundred years ago the principle of the conservation of energy was no more than that. Between its foggy beginnings and its present condition of relative clearness and usefulness, it passed through every intermediate stage of obscurity. Rumford, Mayer, Clausius, Helmholtz, Joule, Kelvin, and many other great minds shared in the clarification of thought which constituted its

discovery. It is only within a couple of generations that physicists have distinguished between force and energy, and the multitude do not make the distinction to this day. The nature of the directional element of evolution—if it has one—is an obscure but interesting question, which further study may make clearer.

But in her blind striving for a being possessed of common sense nature incidentally developed an undesirable characteristic. Egotism is even more universally essential to survival than common sense. Hence, as we have already pointed out, natural selection, in developing a being possessed of common sense, developed an egotist. The end of the universe is total happiness, that of the average man is his own happiness. Hence, unless some means is provided for substituting an altruistic for an egotistic—an impersonal for a personal—end, man, despite his great potentiality, will fail to fulfill the

function for which nature "designed" him; for his prevision may be as well employed to set in operation the causes of unhappiness throughout the universe as those of happiness.

Fortunately, man belongs to the least egotistic branch of the animal kingdom—the mammalia; and the necessity of care for his helpless progeny has developed in him the beginnings of altruism. The impersonality of interest thus originated has by force of analogy suggested to the higher intelligences among men an extension of altruism to include first the tribe, next the nation, afterwards humanity, and finally all sentient creation; and they have striven—with varying degrees of success—to extend the practice of altruism in the degree to which their own capacity for impersonal thinking has permitted them. It cannot be said that their attempts to educate man into altruism have been conspicuously successful in prac-

tice; the uncompromising egotism inherited through a hundred million generations is hard to overcome—yet something has been accomplished, and the ideal of altruism has been firmly implanted in the mind of man, even if its practice has as yet failed to be implanted in his conduct.

The one common characteristic of all great moral codes—whether of Confucius, Buddha, Zoroaster, Socrates, Christ, or Mohammed, is the exhortation to altruism. The one common characteristic of all great moralists has been their recognition, even if an obscure one, of the end of the universe to be totality of happiness. All of them have, with varying degrees of consistency, been preachers of utilitarianism, their moral systems being in this respect identical with that of science. They seek to develop the essential characteristic in man which nature's process of adaptation failed to develop. They have arisen to complete the task which

evolution has thus far left incomplete. Evolution endowed man with the capacity for adapting his means to his ends. The great moralists of all ages have sought to make his ends harmonize with that of the universe.

From these considerations, the duty as well as the function of man in the universe is clear, for his duty is determined by his function. That duty is to put in the most effective operation the causes of universal happiness, and the most immediate requirement in the performance of that duty is the production of happiness among the human beings to be found on the earth—a requirement to be met by the practice of the politics of utility. But the more remote and ultimate requirements of his duty impose a practice not commonly classed as political. may perhaps more appropriately be called the practice of the religion of utility, for it contemplates the interests of future beings

whose importance in the universe will far transcend that of man.

It may be surmised that the most efficient production of happiness in the universe will ultimately require the cooperation of two distinct classes of sentient beings—the first subserving in the highest degree the function of man in his primary capacity, the second subserving in the highest degree the function of man in his secondary capacity. The characteristics required in the first class of beings have been specified in the earlier portion of this lecture. They are a primary efficiency of conversion or pleasure production, such that a minimum expenditure of energy will give rise to a maximum output of happiness. This class of beings will not necessarily or even probably possess either intelligence, altruism or will. Their function will be to feel happiness, and, in adapting them in the highest degree for this special function other characteristics must probably, perhaps neces-

sarily, be sacrificed. The size, shape, or even the kind of material composing the bodies of this class of sentients cannot be predicted in the present condition of our ignorance. Before any of these things can be determined a profound knowledge of the relation between happiness and its causes must be acquired; and of such knowledge we have at present but the rudiments. Indeed the production of beings having this specialized function will probably not be the work of man, as we know him; but it may be the work of beings developed from or by man.

This brings us to the question of the characteristics required in the second class of beings mentioned—the class which is to possess maximum efficiency in man's secondary capacity.

In the first place, these beings will have to be utilitarians. That is, the end they seek must be universal happiness. In the second place, they must have the will to fulfill this

function persistently; though if their search for the goal of utility has developed into a passion, little will power will be required, since their impulses and their duty will impel them to the same goal. In the third place, their intelligence will have to be supreme. Their capacity for adapting their means to their end must indefinitely transcend the capacity of man. Man's intelligence seems high only because it is compared with that of animals. To master the mysteries of the universe—to trace the law of causation through the vast complexities necessary to reveal the most effective mode of producing universal happiness—is a task requiring intelligence as far transcending that of man as man's intelligence transcends that of mollusks. Yet if the universe is to attain its goal, such intelligences it must develop. Not otherwise can the causes of happiness latent in nature be set in operation with maximum effectiveness. Not otherwise can their re-

action upon the specialized beings of the first class be predicted with the accuracy required. In fact, the supreme aim of man in this direction should be to develop a class of beings through whose transcendent powers of common sense the universe shall completely comprehend itself—for with perfect comprehension combined with complete altruism will come perfect guidance to its goal. other words, the aim of man should be the ultimate development of omniscience endowed with a passion for righteousness. Complete knowledge involves complete power. Omniscience involves omnipotence, and it is with the idea of a perfectly righteous omnipotence that men have come to associate the term God, a fact affording one more evidence of the soundness of utilitarianism; for it is not by accident that when the attributes of the being of maximum utility come to be described they turn out to be those universally ascribed to God. To develop a god

or race of gods then is the supreme goal of evolution, and an essential aim of the universe. Not otherwise can the means of the universe be completely adapted to its end; and if it is the aim of the universe, it should be the aim of man. The human race may indeed be considered as occupying a stage in the evolution of a race of gods—a lowly stage to be sure—but so far as our knowledge extends, the least lowly of any stage yet attained by nature.

If these views be correct, it is plain that while the morals of science and theology are similar their teleologies are diametrically opposed. The idea we find pervading all theology is that God created the universe and man—that a perfect being took the trouble to create a set of imperfect beings—that perfection stooped to imperfection—that incorruption generated corruption. In this view man is a decided anti-climax, and has no unique utility, no supreme significance in the

universe. His paramount function cannot be the development of a being capable of achieving the object of the universe. Such a being already exists—has existed since eternity, and through his omnipotence can achieve the object of the universe by a simple "Let it be so." He is not at all in need of man's assistance any more than of that of any other insect. Certainly if God cannot guide the universe to its end, man might as well abandon all hope of doing so.

The teleology of science involves no such fantastic concept. It suggests, not that man is a low caricature of a pre-existing divinity, but that he is a dim prophecy of a divinity that is to be; not that the universe proceeded from the deity, but that it is proceeding to him; not that God created nature, but that nature is seeking to create God. It conceives of God as a being who serves, not one who is served by, the rest of creation, as one who exists to glorify, not to be glorified by,

the rest of the universe. Science interprets the process of evolution as a progress from imperfection toward perfection, not as the labored trifling of a perfection already attained. The purpose which it suspects in the universe is one of improvement—a striving after something infinitely better than has ever been before. Theology can suspect no such purpose, since it assumes that the best the universe can do has already been done.

Although according to the utilitarian view the realization of man's destiny is remote, yet the direction that he must take to realize it is, even at this stage in his progress, by no means obscure. In seeking the object of the universe man must take the steps that are within his reach, and the first stage in the development of the types of beings we have specified is without doubt the improvement of man himself. On account of his relatively high intelligence, he is the most promising starting point in such a develop-

ment of which we have knowledge; and only two modes for promoting his improvement are known: (1) By education. (2) By inheritance. Both modes should be employed. But in the present essay, I shall not undertake any systematic discussion of how they should be employed, or to what preliminary course of education the public mind must be subjected to admit of the adoption of the most effective means of improvement. I shall confine myself to suggesting in brief outline a policy of development which, if adopted, would presumably lead more effectively, more directly, and more rapidly to the desired end than any other which is apparent.

In the first place what men need most now is knowledge. They cannot accomplish the most useful things open to the accomplishment of terrestrial beings because they do not know how. If the present generation is to effectively promote the process of con-

verting the earth, and eventually perhaps the universe, into a great happiness producing mechanism, it must convert itself, and seek to convert its immediate successors, into a great knowledge producing mechanism. The most useful kind of production it can achieve at the present stage of evolution is the production of knowledge. As majestic agencies for the increase of useful knowledge the next few, or perhaps many, generations may well devote their exclusive energy to the service of a future fraught with such overpowering potentialities as the teleology of utility presents to the imagination of man. The sacrifice of ages of happiness would be an infinitely small price to pay for such a reward. But no such sacrifice is needed, for the process of increasing knowledge, with universal happiness as a goal, would constitute the highest form of pleasurable production.

If we suppose some community eventually

brought by education to a point of enlightenment which would sanction the breeding of human beings for the benefit of posterity, it is not difficult to demonstrate that an agency of extraordinary power would thereby be brought into operation in achieving the goal of utility. The great success which has been met in attempts to alter and improve the races of domestic animals and plants in a great variety of ways by breeding affords good reason for the belief that similar methods applied to the human race would meet with similar success. A faculty in the plastic condition of intelligence is particularly susceptible of great and rapid improvement in the hands of breeders; and it is probable that by intelligent selection a few generations would produce a type of intelligence as far above that of the average man, as the intelligence of the average man is above that of the average horse. The advance in knowledge of, and control over, the universe

accomplished by such a race would be to the science of present men as our science is to that of the bushmen.

Moreover, the policy thus suggested would be beneficently accelerative. The further it advanced the cause of utility the more rapidly would the means of yet further advancement be provided. As knowledge expanded under the organized attack of a community of superior intelligences, equipped with the superior methods and apparatus of research which such intelligences would develop, it is probable that far better means of improving the breed would be discovered than are known in our day. These better methods would be employed in the development of still more exalted forms of intelligence, differentiated perhaps into specialized types of intelligence for the fulfilment of specialized functions. Thus each advance in knowledge would react to advance the grade of terrestrial intelligence, and each advance in terres-

trial intelligence would in turn react to advance the acquisition of knowledge again, until the limit of the capacity of the universe for producing intelligence had been reached.

It may plausibly be urged that before the lapse of many centuries of such development the crude method of improving intelligence by breeding which is the best known in our age would be replaced by a method more effective; that when the advance of knowledge under the direction of more exalted intelligences has revealed more completely the secrets of nature, that nature's present methods may be vastly improved upon.

It may also be imagined that long before the ultimate stage in the development of intelligence has been reached, the power of the successors of man to extend their influence in the universe will have converted them from terrestrial to cosmic beings. They will have discovered means of communicating with and controlling portions of the universe

not only beyond our earth, but beyond our solar system, and will have developed a mastery over the material universe as little to be comprehended by us, as our mastery over the material surface of our planet is to be comprehended by the worm which crawls beneath its soil. If man has descended from creatures having a grade of intelligence lower than that of the worm—as he undoubtedly has-why may not intelligences as far above his as his is above the worm's be descended from him in turn, and if this be attainable, why should the process stop short of the ultimate development of omniscience? If this seems like hitching our wagon to too remote a star, it can, at any rate, do no harm to move in that general direction.

Perhaps some critics will consider that such speculations as those here indulged are beyond the legitimate sphere of science—that they are so remote from their data as to be unsubstantial visions. Such a criti-

cism may perhaps be acknowledged to have some force, but it represents a superficial view of the sphere of science. Science sets no limits to speculation so long as the degree of disparity between hypothesis and verification is apprehended, and I am under no misapprehension as to the character of these speculations. I advance them only as possibilities. I do not pretend accurately to estimate their probabilities.

Science indeed makes no attempt to transcend the power of human faculty. Such an assertion ought of course to go without saying, but the critics of science, by deeming it worth while so frequently to point out that the scientific method cannot attain infallibility or absolute knowledge, imply that someone thinks it can. The very nature of the scientific method reveals its fallibility, but if anyone has a method less fallible to propose he would do mankind a vast service if he would expound it. Certainly intuition-

ism, the only proposed alternative to science, is not less fallible.

Thus in suggesting that the maximum happiness of sentient creation is the end of greatest interest to the universe, and should therefore be the aim of man, I am not claiming that fuller knowledge might not reveal such a view to be mistaken. I am only challenging the discovery of an end of greater interest. To assert that some being of unknown and undreamed of faculties might be capable of making such a discovery is no answer to such a challenge. We should act according to the best guide we have, and not renounce action altogether on the ground that some being of a different constitution might provide a different and perhaps a better one.

It cannot be denied that interesting conditions of consciousness as different from happiness and unhappiness or approval and disapproval as sight is different from smell or

sound from taste may be possible in the universe. It may even be that something as different from consciousness and unconsciousness as they are different from each other may be among the possibilities. To beings who can apprehend such things must be left the task of formulating the end of greatest interest to them. Their ideas of right and wrong would necessarily differ from ours because their categories of interesting perceptions would differ. Perhaps time may develop or space contain beings capable of a fuller apprehension of the end of the universe than is attainable by man, but that is no reason why man should not press on in the path which, to a being of his faculties is that of greatest promise, trusting to the higher intelligences of the future to make such modifications in his formulation as their fuller knowledge may warrant.

It is true that the process of human evolution I have suggested is but a product of the

imagination, but I take it to be a product of the scientific imagination—it is perhaps no more than a dream of the future, but it is a dream suggested by the reality of the past. It is indeed an extension of the course of evolution, an extrapolation of the curve of cosmic progress, into the realm of the unknown; but its course has been directed by observation of that curve in the realm of the known. The evolution of a god from a man will not seem impossible to him who recalls the evolution of an Aristotle from an amœba. In suggesting that the universe may develop a God, and in pointing out a possible course of events by which such a development may be accomplished, I no more transcend the legitimate limits of human speculation than do those who suggest that a God developed the universe, and point out the possible end he had in mind in so doing. fact, the teleology of science embodies not a less but a more legitimate interpretation

of the progress of the universe than that of theology; for the observation of nature certainly affords better reasons for believing the course of evolutionary progress to be from imperfection to perfection than from perfection to imperfection.

Indeed, those who maintain the unprofitableness of speculation as to the destiny and utility of man and of the universe must maintain the unprofitableness of religion itself. They must deny the obvious utility of that exaltation of spirit which man experiences when he feels that his labors, his aspirations and his hopes harmonize with those of the mighty powers of creation in which he lives and moves and has his being. That admixture of inspiration and emotion which is the essence of all religious experience can have no loftier justification than the reasonable hope that the efforts of man, humble though they be, may, through the stupendous powers of development inherent in nature, be

instrumental in the ultimate establishment of a universe of happiness. The religions of intuitionism in so far as they develop that exaltation of spirit, that emotion and inspiration, and direct it to the service of man or of the universe are useful; but repudiating reason as they do, they breed a faith without foundation. The religion of common sense, on the other hand, can justify its faith by reason—the teleology of science like its logic and its ethics is independent of the opinions and traditions of men. It may be of indeterminate probability, but it is not arbitrary. It is an expression of the aspiration of the universe, as logic is an expression of its law. If man would be in harmony with the universe, he must seek its end as well as conform to its law; and if he would accomplish his destiny, he must seek its end through its law. To do so in the highest degree permitted by his powers is completely to vindicate his utility.

